2012-13 Farm Machinery
Custom and Rental Rate Guide

FARM MANAGEMENT

Saskatchewan
Ministry of
Agriculture

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INTRODUCTION

Purpose: This guide has been established to provide approximate costs for renting equipment or obtaining custom farming operations from another farmer. This is not intended for establishing rates for individuals or companies that rent equipment or contract custom farming operations as a business.

The guide is applicable for two different situations. One is to suggest an equitable price for both parties when one farmer either rents a piece of equipment from another farmer or hires the other to do a farming operation (seeding, spraying, harvesting, etc.). In this situation, the time of rented operation is usually relatively small in proportion to the use by the owner. The other use is when farmers share equipment and need to establish the value of the machinery and/or farming operation that is being contributed to each farm.

Caution: Nearly every situation has particular circumstances and conditions which are unique. This guide cannot address every situation. It is up to the individuals to recognize special circumstances and make suitable adjustments to cover the differences. It is incumbent upon both parties to agree to acceptable terms before entering into an agreement.

Method: One of the most critical steps in establishing a rental rate is defining the cost of equipment ownership which includes equipment value, financing, depreciation, repairs and maintenance. Since it is likely that some factors will change for every situation, it was necessary to develop a set of assumptions that form the basis for calculating costs.

Cost of ownership: Cost of ownership has been broken down into cost of servicing debt and loss in machine value due to depreciation from hours of use and years in service.

Operating costs: Operating costs include repair and maintenance (broken and worn parts, oil, filters and labour for repair and service), fuel use, housing and insurance. In addition, there are operating labour costs and a margin to cover unexpected incidentals and specific conditions that affect work rate.

Assumptions:

Basic Assumption: In all cases, it is reasonable to assume that rented machinery is in good repair and is capable of performing the intended task in the same manner and at the same productive rate as similar machines of equal specification, ratings or category regardless of age.

Equipment Value: The first assumption is setting the initial value based upon the typical suggested list price for a machine suitably equipped for the crops and conditions in the particular area where it is being used. The **purchase price** used is based upon the **average** of the **base list price** and the list price for that machine with **all available options**.

Finance Cost: It has been assumed that 50 per cent of the initial price is made up of the value of a trade-in and/or a cash payment with the remaining 50 per cent financed. The finance rate is based upon one per cent opportunity costs associated with the 50 per cent not financed and an average of Farm Credit Canada (FCC) rates (5.5 per cent) for the 50 per cent balance financed. A combined total of 6.5 per cent interest is amortized over a reasonable payback period of 10 years (assuming the purchase has been added to a balance already owed).

Depreciation: After the first year of use, most machinery depreciates at a fairly consistent rate over the next 10 to 15 years (with typical use). Over that time, about two-thirds of its useful life will have been used. This two-thirds of **useful life** is referred to in this guide as the **optimal life** and it represents the number of years equipment is owned until it depreciates to one-third of its value. A machine's useful life depends on many factors and may vary greatly in years and hours. The end of its useful life is when the cost of repairs exceeds its market value.

Repair and Maintenance (R&M): Each machine's optimal life is typically measured in hours. Routine maintenance such as oil, lubricants and filters, as well as component wear or damage is associated with hours of use regardless of when they occur over its life. Early in its life, repairs due to component failure are not usually as high as later. However, during its life repair expenses will occur. Averaging the lifetime cost on a per hour basis provides a fair distribution of the repair costs. For this document, the average yearly basic maintenance and repairs have been added to what would be considered a major repair during its optimal life. These costs are divided by the hours accumulated over its optimal life.

Note that average repair and maintenance costs do not include extraordinary events brought about by extreme conditions, abuse or accident.

Fuel costs: Fuel cost is dependent upon fuel market price and can fluctuate dramatically. The diesel fuel price is charged at $0.94/L based on the removal of provincial fuel tax, which farmers and custom operators are both eligible for as a Fuel Permit Exemption Holder. The five per cent Goods and Services Tax (GST) was deducted based on allowable business deductions for fuel. Any power unit's fuel use is highly dependent upon the load (per cent of available power being used) and duty cycle (per cent of time at particular loads). To determine the cost based on fuel efficiency, 75 per cent load is assumed. For alternative loads, fuel usage can be determined by using charts in **Appendix H**.

The selection of the power unit and the operating conditions (yield, moisture, soil type, terrain, etc.) will also affect fuel use. This means that for similar tasks there can be a wide variation in fuel cost. For this reason, it is fair if the renter supplies or purchases fuel separately from the rental rate. A fuel cost estimate has been included based upon typical use and should be used only as a "ball park" indication of what fuel cost might be.

Work Rate: Instantaneous work rates are easily calculated based upon the implement's working width and its travel speed. However, in all field operations there is a difference between the instantaneous work rate and the average work rate accomplished over several hours. This is referred to as field efficiency. Field efficiency can vary greatly depending upon work conditions (field size and shape, soil or crop conditions, suitability of the equipment for the task, and availability of support equipment). For this guide, a field efficiency of 80 per cent has been chosen and applied to all tasks.

Insurance and Housing: It is reasonable to expect that equipment owners will carry suitable insurance against accidental damage and for liability. Suitable housing is also a reasonable measure for maintaining equipment value and performance. These costs have been set at one per cent of the original purchase price of the machine.

Labour Rate: The labour rate has been set at $20.00 per hour. It is intended only as a reflection of the labour market in Western Canada. This rate is arbitrary and will vary depending upon availability and the individual's experience and skills.

Margin: When performing custom farming operations, conditions can be unpredictable. To account for unexpected cost increases brought about by difficult situations, it is customary to include a margin onto the estimated custom rate. This margin has been arbitrarily set at 15 per cent. For machinery rental, the margin is applied to the machine cost, but for custom rates, it has been applied to labour and fuel as well.

Using the Guide:

Per acre rate: Equipment rental or custom operation hourly charge rate is based upon the addition of all yearly costs divided by the typical hours of use. The hourly rate multiplied by the field efficient work rate (per cent of instantaneous work rate expressed as a decimal) yields a cost per acre rate. The acre rate is often used because it fixes the renter's cost and allows the owner/operator to adjust the operation to the conditions. This may mean either going slower to minimize machine damage and operator stress in difficult conditions or being able to go faster in favourable conditions without losing revenue.

Hours of use impact: When machinery is shared between cooperating farmers, a cost often needs to be assigned for the usage of each machine to define the value of its contribution. In previous guides, the yearly hours of use have greatly influenced the dollar per hour ($/hr) rate. When yearly costs are divided by low hours of use, the $/hr increases significantly and high hours of usage reduces the $/hr. This method tends to exaggerate the difference because it does not consider the effect on residual value which is often determined by the machine's total hours. To achieve a fair evaluation, the difference in retained value must be taken into account.

Additional Information:

This publication can be printed from the Ministry's website at www.agriculture.gov.sk.ca or copies can be requested from the Agriculture Knowledge Centre at 1-866-457-2377 or from your nearest Saskatchewan Agriculture Regional or Satellite Office.

Online Calculator Versus the Printed Guide:

An online calculator is also available on the Ministry's website which allows the user to enter individual information. In the calculation of Ownership Costs, slightly different methods are used when calculating the Investment portion (interest and opportunity cost) in the Online Calculator versus the printed Guide. The Online Calculator has the ability to readily access large, and somewhat complex, interest and amortization tables in the calculation of Investment Costs. The Online Calculator uses these tables to generate the Ownership Cost numbers.

In the 2012-13 edition of the Guide, the calculation of the Investment Cost portion of the Ownership Costs uses a somewhat simplified equation to approximate the results otherwise obtained by using the amortization tables. (See Appendix C, section ii Investment Cost). The results in the Guide are then readily comparable to those that producers would get when figuring out their own cost information and calculating their own rental rates and custom rates by hand.

The net effect of the slightly different methodologies means that the final rental rates and custom rates generated by each method are slightly different. (For example, the calculation of Ownership Costs on a Two Wheel Drive Tractor in the 100-119 hp range using the Online Calculator is $15.91 while the Guide generated a value of $15.48. This eventually leads to a final difference in the rental rate calculation between the two methodologies of $0.48/hr.) This nominal difference can be slightly larger on a more expensive piece of equipment. For example, the difference in rental rate for a Class 8 Conventional Combine is $4.08/hr when using the Online Calculator versus the Guide. Overall, the variation is about 2 per cent of the total estimated Rental Rate.

Two different methodologies were used to allow both a high level of accuracy along with a high degree of flexibility for growers when calculating the rental and custom rates, depending on the technology available to them.

In general, when making comparisons between the Guide and the Online Calculator, producers should ensure that variables (i.e. machine width, speed, work rate, etc.) utilized in each are comparable.

PAMI

This guide was developed by PAMI and the Saskatchewan Ministry of Agriculture in partnership with Manitoba Agriculture, Food and Rural Initiatives.

Summary

Equipment	Machine Size or Type	Rental Rate (per hour)			Custom Rate (per hour)			Average Custom Rate*	
Tractors	2WD	$12.49	to	$43.82	$49.54	to	$99.25		
	FWA	$11.91	to	$77.46	$48.97	to	$156.67		
	4WD	$67.50	to	$108.05	$147.80	to	$229.42		
	Tracked	$79.24	to	$135.49	$154.13	to	$282.81		
Combine	Conv or Rotary	$160.14	to	$235.79	$223.14	to	$327.97	$25.52	per acre
Combine Header		$8.12	to	$152.79					
Swather		$68.43	to	$88.23	$115.22	to	$150.14	$8.01	per acre
Grain Bag Loader		$24.30	to	$69.43	$73.27	to	$154.40		
Grain Bag Extractor		$42.81	to	$60.63	$91.78	to	$131.12		
Grain Vac		$57.69	to	$83.55	$111.58	to	$168.53		
Grain Cart		$9.19	to	$42.68	$105.38	to	$219.17		
Grain Dryer		$36.34	to	$114.16					
Grain Auger	PTO	$4.66	to	$30.20	$53.63	to	$52.82		
Grain Conveyor	Belt	$18.37	to	$79.46	$67.33	to	$149.95		
Mower Conditioner	Self Propelled	$105.34	to	$252.82	$162.93	to	$345.00	$16.14	per acre
Mower Conditioner	Pull Type	$12.73	to	$33.82	$61.70	to	$104.30	$11.20	per acre
Hay Rakes		$11.15	to	$43.28	$60.12	to	$92.24	$5.51	per acre
Forage Harvester	Self Propelled	$163.22	to	$242.80	$265.14	to	$396.60	$29.27	per acre
Forage Harvester Header	Self Propelled	$13.66	to	$64.05					
Forage Harvester	Pull Type	$67.72	to	$118.36	$163.91	to	$275.03	$77.53	per acre
Forage Harvester Header	Pull Type	$13.66	to	$36.17					
Baler	Small Square	$17.79	to	$24.67	$66.75	to	$80.75	$0.42	per bale
Baler	Large Square	$79.44	to	$106.96	$175.63	to	$221.64	$4.90	per bale
Baler	Round	$21.65	to	$37.96	$70.62	to	$94.03	$6.09	per bale
Bale mover**	Pull Type	$28.09	to	$94.91	$91.66	to	$209.58		
Air Drills		$139.30	to	$309.30	$284.33	to	$493.87	$15.44	per acre
Air Hoe Drills		$86.28	to	$287.35	$234.07	to	$485.14	$13.02	per acre
Air Disc Drills		$74.74	to	$110.75	$177.39	to	$234.96	$11.41	per acre
Air Seeders		$77.51	to	$173.61	$209.74	to	$358.18	$12.97	per acre
Row Crop Planters		$114.67	to	$244.67	$210.85	to	$389.70	$17.03	per acre
Cultivators	Field, heavy duty	$15.46	to	$46.68	$100.43	to	$231.25	$6.72	per acre
Discs	Offset, tandem	$36.25	to	$73.89	$121.45	to	$199.59	$16.06	per acre
Harrows	Standard, heavy	$28.90	to	$45.32	$153.12	to	$229.89	$4.22	per acre
Harrows	Packers	$6.92	to	$12.85	$77.40	to	$115.50	$3.98	per acre
Land roller		$10.23	to	$76.70	$59.20	to	$200.92	$5.56	per acre
Rock picker		$33.72	to	$40.66	$87.61	to	$96.73		
Rock rake		$14.06	to	$27.40	$63.02	to	$76.37	$11.52	per acre
Land scraper		$69.37	to	$172.47	$154.34	to	$357.04		
Sprayers**	High clearance	$62.62	to	$120.00	$116.97	to	$199.21	$1.75	per acre
Sprayers**	PTO	$59.96	to	$71.01	$144.94	to	$195.23	$1.93	per acre

* Exercise caution when using these average figures as they may not reflect actual situations. They should be used as a guideline only.
**Hauling water to field for spraying $0.26 to $1.24 per acre. Hauling grain from field to yard $0.24 per bushel for first three miles plus $0.02 per bushel for each additional mile. Hauling bales $9.87 per bale (assuming a six mile haul). See Appendix A(A) - A(C).

Power Units

Two Wheel Drive Tractors

Machine Size	Purchase Price	Litre/ Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership & R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
50-59 hp	$43,800	13	7.65	3.21	1.63	12.49	12.22	20.00	4.83	49.54
60-69 hp	$47,000	15	8.20	3.45	1.75	13.40	14.10	20.00	5.12	52.61
70-79 hp	$53,900	16	9.41	3.95	2.00	15.37	15.04	20.00	5.26	55.66
80-89 hp	$69,500	18	12.13	5.10	2.58	19.81	16.92	20.00	5.54	62.27
90-99 hp	$76,800	21	13.41	5.63	2.86	21.89	19.74	20.00	5.96	67.60
100-119 hp	$88,700	24	15.48	6.50	3.30	25.29	22.56	20.00	6.38	74.23
120-149 hp	$117,800	28	20.56	8.64	4.38	33.58	26.32	20.00	6.95	86.85
150+ hp	$153,700	30	26.83	11.27	5.72	43.82	28.20	20.00	7.23	99.25

Annual hours of use: 300
Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.
Power rating represents PTO power.
If tractor rating is given in net engine power, multiply by 0.88 to get PTO power.
GPS is included. To take GPS out, subtract $3.28/hr for guidance and autosteer equipment costs. Add an additional hourly fee of $3.00/hr if using prescription guidance.

Four Wheel Drive Tractors

Machine Size	Purchase Price	Litre/ Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership & R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
350-399 hp	$288,700	53	42.66	16.04	8.80	67.50	49.82	20.00	10.47	147.80
400-449 hp	$323,600	72	47.82	17.98	9.87	75.66	67.68	20.00	13.15	176.50
450-499 hp	$353,500	73	52.24	19.64	10.78	82.66	68.62	20.00	13.29	184.57
500-549 hp	$386,900	78	57.17	21.49	11.80	90.46	73.32	20.00	14.00	197.78
550-599 hp	$409,400	85	60.50	22.74	12.49	95.73	79.90	20.00	14.99	210.61
600+ hp	$462,100	91	68.28	25.67	14.09	108.05	85.54	20.00	15.83	229.42

Annual hours of use: 450
Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.
Power rating represents engine power.
GPS is included. To take GPS out, subtract $3.28/hr for guidance and autosteer equipment costs. Add an additional hourly fee of $3.00/hr if using prescription guidance.

Front Wheel Assist Tractors

Machine Size	Purchase Price	Litre/ Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership & R&M($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
50-59 hp	$50,400	13	7.45	2.91	1.55	11.91	12.22	20.00	4.83	48.97
60-69 hp	$53,700	15	7.94	3.10	1.66	12.69	14.10	20.00	5.12	51.91
70-79 hp	$57,500	16	8.50	3.32	1.77	13.59	15.04	20.00	5.26	53.89
80-89 hp	$57,600	18	8.51	3.33	1.78	13.62	16.92	20.00	5.54	56.07
90-99 hp	$89,600	20	13.24	5.18	2.76	21.18	18.80	20.00	5.82	65.80
100-119 hp	$95,700	23	14.14	5.53	2.95	22.62	21.62	20.00	6.24	70.48
120-139 hp	$138,700	27	20.50	8.01	4.28	32.79	25.38	20.00	6.81	84.97
140-159 hp	$177,000	29	26.15	10.23	5.46	41.84	27.26	20.00	7.09	96.19
160-179 hp	$195,200	31	28.84	11.28	6.02	46.14	29.14	20.00	7.37	102.65
180-199 hp	$223,200	36	32.98	12.90	6.88	52.76	33.84	20.00	8.08	114.67
200-224 hp	$240,700	41	35.57	13.91	7.42	56.90	38.54	20.00	8.78	124.22
225-249 hp	$256,300	45	37.87	14.81	7.90	60.58	42.30	20.00	9.35	132.23
250-274 hp	$301,300	47	44.52	17.41	9.29	71.22	44.18	20.00	9.63	145.03
275+ hp	$327,700	52	48.42	18.93	10.10	77.46	48.88	20.00	10.33	156.67

Annual hours of use: 450
Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.
Power rating represents PTO power.
If tractor rating is given in net engine power, multiply by 0.88 to get PTO power.
GPS is included. To take GPS out, subtract $3.28/hr for guidance and autosteer equipment costs. Add an additional hourly fee of $3.00/hr if using prescription guidance

Tracked Tractors

Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership & R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
300-349 hp	$314,800	48	46.52	22.39	10.34	79.24	45.12	20.00	9.77	154.13
350-449 hp	$401,900	77	59.39	28.58	13.19	101.16	72.38	20.00	13.86	207.40
450-549 hp	$435,300	110	64.32	30.95	14.29	109.57	103.40	20.00	18.51	251.48
550-599 hp	$479,700	112	70.88	34.11	15.75	120.74	105.28	20.00	18.79	264.82
600+ hp	$538,300	115	79.54	38.28	17.67	135.49	108.10	20.00	19.22	282.81

Annual hours of use: 450
Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.
Power rating represents engine power.
GPS is included. To take GPS out, subtract $3.28/hr for guidance and autosteer equipment costs. Add an additional hourly fee of $3.00/hr if using prescription guidance.

Harvesting Grain

SP Combines

Machine Size	Purchase Price	Litre/ Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour and Fuel ($/hr)	Custom Rate ($/hr)	Work Rate (acre/ hr)	Custom Rate ($/acre)
Conventional - No Header												
Class 6	$338,900	42	112.67	33.89	21.98	168.55	39.48	20.00	8.92	236.95	9	26.33
268 - 322 hp												
Class 7	$357,300	50	118.79	35.73	23.18	177.70	47.00	20.00	10.05	254.75	11	23.16
323 - 374 hp												
Class 8	$373,300	60	124.11	37.33	24.22	185.66	56.40	20.00	11.46	273.52	14	19.54
375 - 461 hp												
Rotary - No Header												
Class 5	$322,000	37	107.06	32.20	20.89	160.14	34.78	20.00	8.22	223.14	8	27.89
≤ 267 hp												
Class 6	$340,600	44	113.24	34.06	22.10	169.40	41.36	20.00	9.20	239.96	10	24.00
268 - 322 hp												
Class 7	$371,200	48	123.41	37.12	24.08	184.61	45.12	20.00	9.77	259.50	12	25.95
323 - 374 hp												
Class 8	$414,300	58	137.74	41.43	26.88	206.05	54.52	20.00	11.18	291.75	15	19.45
375 - 461 hp												
Class 9+	$474,100	64	157.63	47.41	30.76	235.79	60.16	20.00	12.02	327.97	17	19.29
≥ 462 hp												

Conventional annual hours of use*: 200

Rotary annual hours of use*: 250

*Based on separator annual hours of usage.

Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.

Combine Headers

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
Pickup Headers					
13-14 ft	$26,200	5.49	1.57	1.06	8.12
15-16 ft	$30,500	6.39	1.83	1.23	9.45
Rigid Headers with Batt Reels					
20-22 ft	$27,400	5.74	2.19	1.19	9.12
25 ft	$35,800	7.50	2.86	1.55	11.92
30-35 ft	$40,700	8.53	3.26	1.77	13.55
Flex Headers with Pickup Reels					
20 ft	$32,400	8.62	3.24	1.78	13.64
25 ft	$34,500	9.18	3.45	1.89	14.52
30 ft	$39,800	10.59	3.98	2.18	16.75
35 ft	$45,700	12.16	4.57	2.51	19.23
Draper Headers with Pickup Reels					
25 ft	$62,600	16.65	6.26	3.44	26.35
30 ft	$71,100	18.91	7.11	3.90	29.92
35-36 ft	$76,000	20.21	7.60	4.17	31.99
40-42 ft	$85,900	22.85	8.59	4.72	36.15
Corn Header					
6 row, 30" spacing	$46,000	30.59	12.88	6.52	49.99
8 row, 30" spacing	$59,100	39.30	16.55	8.38	64.22
12 row, 30" spacing	$89,700	59.65	25.12	12.71	97.48
16-18 row, 20-30" spacing	$140,600	93.49	39.37	19.93	152.79

Pickup header annual hours of use: 250
Rigid header annual hours of use: 250
Flex header annual hours of use: 250
Draper header annual hours of use: 250
Corn header annual hours of use: 100

Calculation to determine the custom rate ($/acre) for a combine using a specific combine header:

$$\text{Custom Rate ($/acre)} = \frac{\text{Combine Custom Rate ($/hr)} + \text{Header Rental Rate ($/hr)}}{\text{Work Rate (acre/hr)}}$$

Example: For a Class 8 Conventional combine with a 30 ft flex header:

$$\text{Custom Rate ($/acre)} = \frac{\$273.52 + \$14.92}{14}$$

Custom Rate ($/acre) = $20.60

SP Swathers

Machine Size	Purchase Price	Litre/ Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour and Fuel ($/hr)	Custom Rate ($/hr)	Work Rate (acre/ hr)	Custom Rate ($/acre)
Draper Header												
18-24 ft	$137,600	22	45.75	13.76	8.93	68.43	20.68	20.00	6.10	115.22	12.0	9.60
25-29 ft	$149,200	22	49.60	14.92	9.68	74.20	20.68	20.00	6.10	120.99	16.0	7.56
30-34 ft	$155,500	32	51.70	15.55	10.09	77.34	30.08	20.00	7.51	134.93	17.5	7.71
35+ ft	$177,400	36	58.98	17.74	11.51	88.23	33.84	20.00	8.06	150.14	21.0	7.15

Annual hours of use: 200
Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.
Fuel efficiency is based on 126 hp (18-24' swather), 126 hp (25-29' swather), 190 hp (30-34' swather), and 226 hp (35' plus swather).

Swath Rollers

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
10 ft drawn	$3,130	1.64	0.31	0.29	2.25
10 ft attached	$2,800	1.47	0.28	0.26	2.01

Annual hours of use: 100

Calculation to determine the custom rate ($/acre) for a swather with a swath roller:

$$\text{Custom Rate (\$/acre)} = \frac{\text{Swather Custom Rate (\$/hr)} + \text{Roller Rental Rate (\$/hr)}}{\text{Work Rate of swather (acre/hr)}}$$

Example: For a 30 ft swather with a 10 ft attached roller:

$$\text{Custom Rate (\$/acre)} = \frac{\$134.93 + \$2.01}{17.5}$$

Custom Rate ($/acre) = $7.83

Grain Bag Loader

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
9 ft Bagger	$21,000	16.93	4.20	3.17	24.30	48.97	73.27
						50 hp	
10 ft Bagger	$33,300	26.85	6.66	5.03	38.53	51.91	90.44
						60 hp	
12 ft Bagger	$60,000	48.37	12.00	9.06	69.43	84.97	154.40
						125 hp	

Annual hours of use: 100

Power unit cost includes fuel and labour (and margin) for tractor. Additional labour to operate bagger should be added if required.

Grain Bag Extractor

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
9 ft Unloader	$37,000	29.83	7.40	5.58	42.81	48.97	91.78
						50 hp	
10 ft Unloader	$37,900	30.55	7.58	5.72	43.85	51.91	95.76
						60 hp	
12 ft Unloader	$52,400	42.24	10.48	7.91	60.63	70.48	131.12
						100 hp	

Annual hours of use: 100

Power unit cost includes fuel and labour (and margin) for tractor. Additional labour and equipment to operate extractor should be added if required.

Grain Vac

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
2400-5000 bu/hr	$29,000	38.57	11.60	7.53	57.69	53.89	111.58
						70 hp	
7000-10,000 bu/hr	$42,900	55.86	16.80	10.90	83.55	84.97	168.53
						120 hp	

Annual hours of use: 50

Power unit cost includes fuel and labour (and margin) for tractor. Additional labour and equipment to operate the grain vac should be added if required.

Grain Cart

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
500-740 bu	$27,600	5.78	2.21	1.20	9.19	96.19	105.38
						150 hp	
750-1000 bu	$47,400	9.93	3.79	2.06	15.78	124.22	140.00
						200 hp	
1150-1300 bu	$77,800	16.30	6.22	3.38	25.90	145.03	170.93
						250 hp	
1500-2000 bu	$128,200	26.86	10.26	5.57	42.68	176.50	219.17
						400 hp	

Annual hours of use: 250

Power unit cost includes fuel and labour (and margin) for tractor.

Grain Dryer

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
275-370 bu/hr	$60,000	26.60	5.00	4.74	36.34
420-610 bu/hr	$81,700	36.22	6.81	6.45	49.48
710-910 bu/hr	$97,800	43.35	8.15	7.73	59.23
1060-1180 bu/hr	$147,800	65.52	12.32	11.68	89.51
1440-2380 bu/hr	$188,500	83.56	15.71	14.89	114.16

Annual hours of use: 150

Rental rate refers to equipment only. Power and fuel (propane or natural gas) consumption is highly dependent on ambient temperature, grain type and required moisture reduction. Refer to specialized calculators for energy requirements.

Grain Auger (PTO)

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
8" 30-39 ft	$6,500	3.40	0.65	0.61	4.66	48.97	53.63
2700 bu/hr						50 hp	
8" 40-49 ft	$6,900	3.61	0.69	0.65	4.95	11.91	16.86
3200 bu/hr						50 hp	
8" 50-59 ft	$7,800	4.08	0.78	0.73	5.59	11.91	17.51
3200 bu/hr						50 hp	
8" 60-69 ft	$8,900	4.66	0.89	0.83	6.38	11.91	18.30
3200 bu/hr						50 hp	
10" 40-49 ft	$8,000	4.19	0.80	0.75	5.74	13.59	19.33
5400 bu/hr						75 hp	
10" 50-59 ft	$10,300	5.39	1.03	0.96	7.39	13.59	20.98
5400 bu/hr						75 hp	
10" 60-69 ft	$13,500	7.07	1.35	1.26	9.68	13.59	23.27
5400 bu/hr						75 hp	
10" 70-79 ft	$14,500	7.59	1.45	1.36	10.40	13.59	23.99
5400 bu/hr						75 hp	
10" 80-89 ft	$17,900	9.37	1.79	1.67	12.84	13.59	26.43
5400 bu/hr						75 hp	
12" 70-79 ft	$20,900	10.95	2.09	1.96	14.99	13.59	28.58
8400 bu/hr						75 hp	
12" 80-89 ft	$22,200	11.63	2.22	2.08	15.92	13.59	29.51
8400 bu/hr						75 hp	
12" 90-99 ft	$21,500	11.26	2.15	2.01	15.42	13.59	29.01
8400 bu/hr						75 hp	
12" 100+ ft	$34,500	18.07	3.45	3.23	24.75	13.59	38.34
8400 bu/hr						75 hp	
13" 70-79 ft	$25,900	13.56	2.59	2.42	18.58	22.62	41.20
9700 bu/hr						100 hp	
13" 80-89 ft	$29,300	15.34	2.93	2.74	21.02	22.62	43.64
9700 bu/hr						100 hp	
13" 90-99 ft	$33,400	17.49	3.34	3.12	23.96	22.62	46.58
9700 bu/hr						100 hp	
13" 100+ ft	$42,100	22.05	4.21	3.94	30.20	22.62	52.82
9700 bu/hr						100 hp	

Annual hours of use: 100

Power unit cost is for 50 hp, 75 hp and 100 hp respectively for 8", 10", 12" and 13" augers. Power unit cost is for rental rate of power unit only (no fuel, labour or margin).

Powered Auger

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
8" 30-39 ft, 20 hp engine	$8,800	4.61	1.32	0.89	6.82
8" 40-49 ft, 20 hp engine	$9,200	4.82	1.38	0.93	7.13
8" 50-59 ft, 25 hp engine	$10,600	5.55	1.59	1.07	8.21
8" 60-69 ft, 36 hp engine	$12,500	6.55	1.88	1.26	9.68

Annual hours of use: 100

Power unit costs are included in rental rate. Rate does not include fuel or maintenance costs for engine.

Belt Grain Conveyor (PTO)

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
12-13" belt, 55 ft	$13,800	13.07	2.90	2.40	18.37	48.97	67.33
3000 bu/hr						50 hp	
15-16" belt, 55 ft	$17,500	16.58	3.68	3.04	23.29	48.97	72.26
6000 bu/hr						50 hp	
20-24" belt, 65 ft	$33,000	31.26	6.93	5.73	43.92	51.91	95.83
11,000 bu/hr						60 hp	
15-16" belt, 75 ft	$25,300	23.97	5.31	4.39	33.68	48.97	82.64
6000 bu/hr						50 hp	
20-24" belt, 75 ft	$39,300	37.23	8.25	6.82	52.31	53.89	106.20
11,000 bu/hr						70 hp	
15-16", 85 ft	$27,800	26.34	5.84	4.83	37.00	48.97	85.97
6000 bu/hr						50 hp	
20-24", 85 ft	$42,200	39.98	8.86	7.33	56.17	53.89	110.06
11,000 bu/hr						70 hp	
15-16", 90 ft	$30,600	28.99	6.43	5.31	40.73	48.97	89.70
6000 bu/hr						50 hp	
20-24", 95 ft	$43,000	40.74	9.03	7.47	57.23	56.07	113.31
11,000 bu/hr						80 hp	
20-24", 105 ft	$47,500	45.00	9.98	8.25	63.22	56.07	119.30
11,000 bu/hr						80 hp	
20-24", 110 ft	$48,500	45.95	10.19	8.42	64.55	70.48	135.04
11,000 bu/hr						100 hp	
20-24", 120 ft	$59,700	56.56	12.54	10.36	79.46	70.48	149.95
11,000 bu/hr						100 hp	

Annual hours of use: 100

Harvesting Hay

SP Mower/Conditioners

Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour and Fuel ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
Disc Mower Conditioner 16-19 ft	$151,600	36	67.20	32.34	14.93	114.48	33.84	20.00	8.08	176.39	13.5	13.07
Disc Mower Conditioner 30 ft	$334,800	64	148.42	71.42	32.98	252.82	60.16	20.00	12.02	345.00	23.0	15.00
Sickle Mower Conditioner 14-16 ft	$139,500	32	61.84	29.76	13.74	105.34	30.08	20.00	7.51	162.93	8.0	20.37

Annual hours of use: 150

Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.
Fuel efficiency is based on 226 hp (16-19' disc), 400 hp (30' disc), and 190 hp (14-16' sickle).

PT Mower/Conditioners

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
Sickle									
7-9 ft side pull	$19,200	8.51	2.56	1.66	12.73	48.97 50 hp	61.70	4.3	14.35
12-14 ft	$41,400	18.35	5.52	3.58	27.45	56.07 80 hp	83.53	7.0	11.93
16 ft	$48,100	21.32	6.41	4.16	31.90	65.80 90 hp	97.70	8.5	11.49
18 ft	$51,000	22.61	6.80	4.41	33.82	70.48 100 hp	104.30	9.6	10.86
Disc									
9-10 ft	$28,900	12.81	4.82	2.64	20.27	51.91 60 hp	72.18	6.2	11.64
12-13 ft	$37,700	16.71	6.28	3.45	26.44	65.80 90 hp	92.24	9.7	9.51
15-16 ft	$46,600	20.66	7.77	4.26	32.69	70.48 100 hp	103.17	12.0	8.60

Sickle annual hours of use: 150

Disc annual hours of use: 150

Note: Smallest power unit available is 50 hp, so cost of power unit above is for 50 hp tractor.
Note: Power unit cost includes fuel and labour (and margin) for tractor.

Hay Rakes (Wheel)

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
16-20 ft bar	$6,700	7.02	2.68	1.45	11.15	48.97	60.12	9.6	6.26
						50 hp			
21-30 ft wheel	$14,400	15.08	5.76	3.13	23.97	48.97	72.94	13.5	5.40
						50 hp			
31-40 ft wheel	$26,000	27.23	10.40	5.64	43.28	48.97	92.24	19.0	4.85
						50 hp			

Annual hours of use: 50

Note: Smallest power unit available is 50 hp, so 50 hp cost used above.
Note: Power unit cost includes fuel and labour (and margin) for tractor.

SP Forage Harvester

Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on labour and fuel ($/hr)	Custom Rate ($/hr)
400-499 hp	$324,900	73	76.95	64.98	21.29	163.22	68.62	20.00	13.29	265.14
500-599 hp	$387,900	85	91.88	77.58	25.42	194.87	79.90	20.00	14.99	309.76
600-699 hp	$403,500	97	95.57	80.70	26.44	202.71	91.18	20.00	16.68	330.57
800-899 hp	$483,300	121	114.47	96.66	31.67	242.80	113.74	20.00	20.06	396.60

Annual hours of use: 400

Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.

Headers for SP Forage Harvester

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Work Rate (acre/hr)	Rental Rate ($/acre)
Windrow Pickup, 9-14 ft width	$28,400	6.73	5.68	1.86	14.27	15.0	0.95
Windrow Pickup, 14-17 ft width	$34,000	8.05	6.80	2.23	17.08	18.0	0.95
Corn, 14-15 ft width	$81,000	19.19	16.20	5.31	40.69	7.3	5.57
Corn, 19-20 ft width	$107,400	25.44	21.48	7.04	53.96	9.7	5.56
Corn, 24-25 ft width	$127,500	30.20	25.50	8.35	64.05	12.1	5.29

Annual hours of use: 400

Calculation to determine the custom rate ($/acre) for a SP or PT forage harvester using a specific header:

$$\text{Custom Rate (\$/acre)} = \frac{\text{Forage Harvester Rate (\$/hr)} + \text{Header Rental Rate (\$/hr)}}{\text{Work Rate (acre/hr)}}$$

Example: For a 500 hp SP Forage Harvester with a 15 ft windrow pickup header:

$$\text{Custom Rate (\$/acre)} = \frac{\$309.76 + \$17.08}{18}$$

Custom Rate ($/acre) = $18.16

PT Forage Harvester

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
For up to 150 hp tractor	$33,700	31.93	26.96	8.83	67.72	96.19	163.91
						150 hp	
For 151 to 250 hp tractor	$51,400	48.70	41.12	13.47	103.29	124.22	227.51
						200 hp	
For up to 300 hp tractor	$58,900	55.80	47.12	15.44	118.36	156.67	275.03
						300 hp	

Annual hours of use: 100

Power unit cost includes fuel and labour (and margin) for tractor.

Headers for PT Forage Harvester

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Work Rate (acre/hr)	Rental Rate ($/acre)
Windrow Pickup, 70-79" width	$6,800	6.44	5.44	1.78	13.66	3.0	4.55
Windrow Pickup, 80-96" width	$10,200	9.66	8.16	2.67	20.50	3.6	5.69
Corn, 2 row	$8,900	8.43	7.12	2.33	17.88	2.4	7.45
Corn, 3 row	$18,000	17.05	14.40	4.72	36.17	3.6	10.05

Annual hours of use: 100

Balers

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (bale/hr)	Custom Rate ($/bale)
Large Round Balers									
4x4 ft bales	$23,100	15.36	3.47	2.82	21.65	48.97	70.62	17	4.15
						50 hp			
4x5 ft bales	$31,900	21.21	4.79	3.90	29.90	51.91	81.80	15	5.45
						60 hp			
4x6 ft bales	$39,900	26.53	5.99	4.88	37.39	53.89	91.28	15	6.09
						70 hp			
5x5 ft bales	$31,100	20.68	4.67	3.80	29.15	53.89	83.03	12	6.92
						70 hp			
5x6 ft bales	$40,500	26.93	6.08	4.95	37.96	56.07	94.03	12	7.84
						80 hp			
Large Square Balers									
small	$124,100	55.01	14.06	10.36	79.44	96.19	175.63	40	4.39
35x31x98"						145 hp			
medium	$147,300	65.30	16.69	12.30	94.29	96.19	190.48	40	4.76
35x47x98"						145 hp			
large	$167,100	74.07	18.94	13.95	106.96	114.67	221.64	40	5.54
50x47x102"						180 hp			
Small Square Baler									
<2 ft3	$24,800	12.99	2.48	2.32	17.79	48.97	66.75	175	0.38
14x18" bales						50 hp			
2-4 ft3	$34,400	18.02	3.44	3.22	24.67	56.07	80.75	175	0.46
16x18" bales						80 hp			

Large Round Balers annual hours of use: 100
Large Square Balers annual hours of use: 150
Small Square Balers annual hours of use: 100

Cost of twine is not included in above rates.
For the cost of twine, add $0.27/bale for 4' diameter, $0.40/bale for 5' diameter and $0.76/bale for 6' diameter. Add $0.78/bale for large square and $0.05/bale for small square.
For the mesh wrap option, add $4900 to the capital cost. For the cost of mesh, add $1.25/bale.
Power unit cost includes fuel and labour (and margin) for tractor.

PT Bale Movers (Self Load/Unload)

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
Round Bale 7-12 bale	$26,700	17.75	6.68	3.66	28.09	84.97	113.07
						120 hp	
Round Bale 12-18 bale	$35,800	23.81	8.95	4.91	37.67	114.67	152.34
						180 hp	
Large Square 4-6 bale	$48,800	32.45	12.20	6.70	51.35	84.97	136.32
						125 hp	
Large Square 6-12 bale	$57,800	38.43	14.45	7.93	60.82	84.97	145.79
						125 hp	
Large Square 12-20 bale	$90,200	59.98	22.55	12.38	94.91	114.67	209.58
						180 hp	
Small Square 83-104 bale	$55,100	28.86	8.27	5.57	42.69	48.97	91.66
						50 hp	

Annual hours of use: 100

Power unit cost includes fuel and labour (and margin) for tractor.

SP Bale Mover

Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on labour and fuel ($/hr)	Custom Rate ($/hr)
Small bale mover, approx. 161 bales	$189,400	28	83.96	31.57	17.33	132.86	26.32	20.00	6.95	186.12
14 x 18", 16 x 18"										

Annual hours of use: 150

Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.

Fuel efficiency is based on 173 hp.

Grinder Mixers and Feed Mixers

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
Grinder Mixers							
285-360 cu ft	$30,000	9.97	4.50	2.17	16.65	70.48	87.13
						100 hp	
Feed Mixers							
Two 6 ft Bale, 40 bu grain	$27,800	9.24	4.17	2.01	15.42	70.48	85.91
						100 hp	

Annual hours of use: 200

Power unit cost includes fuel and labour (and margin) for tractor.

Bale Processors

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
Max. bale size 5.5-6 ft x 6.5 ft	$27,600	9.18	4.14	2.00	15.31	96.19	111.50
Trailer unit						155 hp	
Max. square bale size 8-9 ft long	$14,600	4.85	2.19	1.06	8.10	56.07	64.17
Loader mount unit						80 hp	

Annual hours of use: 200

Power unit cost includes fuel and labour (and margin) for tractor.

Seeding & Fertility

Air Drills with Independent Openers

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
30 ft	$238,700	79.36	41.77	18.17	139.30	145.03	284.33	15	19.61
						275 hp			
40 ft	$267,600	88.97	46.83	20.37	156.17	156.67	312.84	19	16.47
						300 hp			
50 ft	$340,300	113.14	59.55	25.90	198.60	147.80	346.39	24	14.43
						375 hp			
60 ft	$406,100	135.02	71.07	30.91	237.00	176.50	413.49	29	14.26
						425 hp			
65 ft	$447,200	148.68	78.26	34.04	260.98	184.57	445.55	32	14.14
						450 hp			
75 ft	$530,000	176.21	92.75	40.34	309.30	184.57	493.87	36	13.72
						475 hp			

Annual hours of use: 200

Air Hoe Drills

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
27-40 ft	$155,500	51.70	23.33	11.25	86.28	147.80	234.07	16	14.63
						300 hp			
41-50 ft	$216,700	72.05	32.51	15.68	120.23	147.80	268.03	22	12.18
						375 hp			
51-60 ft	$252,500	83.95	37.88	18.27	140.10	184.57	324.67	27	12.02
						450 hp			
61-70 ft	$346,200	115.10	51.93	25.05	192.09	197.78	389.87	32	12.18
						525 hp			
71+ ft	$517,900	172.19	77.69	37.48	287.35	197.78	485.14	35	14.06
						>525 hp			

Annual hours of use: 200

Air Disk Drills

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
28-35 ft	$134,700	44.78	20.21	9.75	74.74	102.65	177.39	15.0	11.83
						165 hp			
36-40 ft	$167,100	55.56	25.07	12.09	92.71	114.67	207.39	18.5	11.21
						190 hp			
41-45 ft	$199,600	66.36	29.94	14.45	110.75	124.22	234.96	21.0	11.19
						215 hp			

Annual hours of use: 200

Air Seeders

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
25-30 ft	$139,700	46.45	20.96	10.11	77.51	132.23	209.74	13.0	16.13
						250 hp			
31-40 ft	$151,800	50.47	22.77	10.99	84.23	145.03	229.25	17.0	13.49
						275 hp			
41-50 ft	$205,500	68.32	30.83	14.87	114.02	147.80	261.82	22.0	11.90
						375 hp			
51-60 ft	$235,000	78.13	35.25	17.01	130.39	176.50	306.88	27.0	11.37
						425 hp			
61+ ft	$312,900	104.03	46.94	22.64	173.61	184.57	358.18	30.0	11.94
						450 hp			

Annual hours of use: 200

Work rates may require adjustment for heavy straw conditions or high fertilizer rates. Refer to Custom Rate calculator in Appendix I.
All air drills have been priced with an air tank of varying capacity respective to the implement's seeding width.
Power unit cost includes fuel and labour (and margin) for tractor.

Anhydrous Ammonia Applicator (Add-on)

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
40-60 ft	$35,000	11.64	3.50	2.27	17.41
Less Tillage tool and Nurse Tank &Trailer					
Annual hours of use: 200					

Requires a nurse tank, trailer and heavy duty cultivator.

Liquid Fertilizer Applicator (Add-on)

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
40-48 ft	$34,500	11.47	3.45	2.24	17.16
(2000 gal. tank and cart, less tillage tool)					
60-72 ft	$45,800	15.23	4.58	2.97	22.78
(3200 gal. tank and cart, less tillage tool)					
Annual hours of use: 200					

Granular Fertilizer Applicators

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
Granular Fertilizer Spreader (Add-on)	$10,200	5.34	1.53	1.03	7.90				
(Cultivator Mount up to 40 ft)									
Granular Fertilizer Spreader (Add-on)	$13,600	7.12	2.04	1.37	10.54				
(Cultivator Mount up to 80 ft)									
Granular Fertilizer Spreader 123-176 cu ft	$34,200	17.91	5.13	3.46	26.50	53.89	80.38	22.0	3.65
(Trailer 36-40 ft)						70 hp			
Granular Fertilizer Spreader 229-370 cu ft	$54,800	28.70	8.22	5.54	42.46	56.07	98.53	29.0	3.40
(Trailer 40-60 ft)						80 hp			

Annual hours of use: 200

Work rates may require adjustment for high fertilizer rates. Refer to Custom Rate calculator in Appendix I.

Power unit cost includes fuel and labour (and margin) for tractor.

Other Row Crop Planters

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
12 row planter	$74,000	70.11	29.60	14.96	114.67	96.19	210.85	14.6	14.44
						150 hp			
16 row planter	$106,300	100.71	42.52	21.48	164.71	114.67	279.39	19.4	14.40
						180 hp			
24 row planter	$177,600	168.26	71.04	35.90	275.20	132.23	407.42	29.1	14.00
						230 hp			
12/24 split row planter	$129,300	122.50	51.72	26.13	200.35	124.22	324.57	14.6	22.23
						210 hp			
16/32 split row planter	$157,900	149.60	63.16	31.91	244.67	145.03	389.70	19.4	20.09
						250 hp			

Annual hours of use: 100

Work rates may require adjustment for heavy straw conditions or high fertilizer rates. Refer to Custom Rate calculator in Appendix I.
Power unit cost includes rental rate, fuel cost, labour and margin for the power unit.

Soil Preparation

Cultivators

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
Cultivators, field (with tine harrows)									
24 ft	$39,900	10.45	2.99	2.02	15.46	84.97	100.43	14.0	7.17
						130 hp			
30 ft	$45,300	11.86	3.40	2.29	17.55	102.65	120.20	17.5	6.87
						165 hp			
35 ft	$50,800	13.30	3.81	2.57	19.68	114.67	134.35	20.3	6.62
						190 hp			
40 ft	$57,100	14.95	4.28	2.89	22.12	124.22	146.34	23.2	6.31
						220 hp			
45 ft	$60,300	15.79	4.52	3.05	23.36	132.23	155.59	26.1	5.96
						250 hp			
50 ft	$80,500	21.08	6.04	4.07	31.18	145.03	176.21	29.0	6.08
						275 hp			
60 ft	$84,700	22.18	6.35	4.28	32.81	154.13	186.94	34.8	5.37
						325 hp			
Cultivators, heavy duty (with tine harrows)									
24-30 ft	$59,600	15.61	4.47	3.01	23.09	114.67	137.76	15.7	8.77
						190 hp			
31-40 ft	$68,700	17.99	5.15	3.47	26.61	132.23	158.84	20.6	7.71
						250 hp			
41-50 ft	$88,800	23.25	6.66	4.49	34.40	147.80	182.20	26.4	6.90
						315 hp			
51-60 ft	$105,400	27.60	7.91	5.33	40.83	176.50	217.33	32.2	6.75
						385 hp			
61-70 ft	$120,500	31.55	9.04	6.09	46.68	184.57	231.25	38.0	6.09
						450 hp			

Annual hours of use: 200

Power unit cost includes fuel and labour (and margin) for tractor.

Disks

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
Disks, heavy offset									
10-12 ft	$26,900	28.18	16.14	6.65	50.96	70.48 105 hp	121.45	5.5	22.08
14-17 ft	$31,100	32.57	18.66	7.69	58.92	96.19 150 hp	155.11	7.5	20.68
18-20 ft	$39,000	40.85	23.40	9.64	73.89	114.67 180 hp	188.56	9.2	20.50
Disks, heavy tandem									
24-30 ft	$57,400	20.04	11.48	4.73	36.25	114.67 180 hp	150.92	13.0	11.61
31-35 ft	$67,000	23.39	13.40	5.52	42.31	124.22 210 hp	166.53	16.0	10.41
36-42 ft	$86,400	30.17	17.28	7.12	54.56	145.03 250 hp	199.59	18.0	11.09

Heavy offset annual hours of use: 50

Heavy tandem annual hours of use: 150

Power unit cost includes fuel and labour (and margin) for tractor.

Harrows

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
Harrows, standard									
70-72 ft	$38,400	22.48	6.14	4.29	32.91	124.22	157.13	40	3.93
						210 hp			
90-92 ft	$45,400	26.57	7.26	5.08	38.91	145.03	183.94	50	3.68
						270 hp			
Harrows, heavy									
28-40 ft	$37,300	19.53	5.60	3.77	28.90	124.22	153.12	25	6.12
						200 hp			
41-50 ft	$42,600	22.31	6.39	4.30	33.00	132.23	165.23	35	4.72
						250 hp			
51-60 ft	$47,000	24.61	7.05	4.75	36.41	145.03	181.44	43	4.22
						300 hp			
61-70 ft	$49,300	25.82	7.40	4.98	38.20	147.80	185.99	50	3.72
						350 hp			
71-80 ft	$53,100	27.81	7.97	5.37	41.14	176.50	217.64	58	3.75
						400 hp			
81+ ft	$58,500	30.64	8.78	5.91	45.32	184.57	229.89	63	3.65
						>405 hp			
Harrow packers									
25-30 ft	$24,600	5.40	0.62	0.90	6.92	70.48	77.40	15	5.16
						125 hp			
31-40 ft	$26,700	5.86	0.67	0.98	7.51	84.97	92.48	25	3.70
						150 hp			
41-50 ft	$38,100	8.36	0.95	1.40	10.71	102.65	113.36	30	3.78
						170 hp			
51-62 ft	$45,700	10.03	1.14	1.68	12.85	102.65	115.50	35	3.30
						200 hp			

Standard annual hours of use: 75

Heavy annual hours of use: 100

Packers annual hours of use: 200

Power unit cost includes fuel and labour (and margin) for tractor.

Land Roller

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
11-20 ft fixed or 3 PT	$10,700	7.47	1.43	1.33	10.23	48.97	59.20	9.0	6.58
						50 hp			
20 ft hydraulic swing	$24,000	16.76	3.20	2.99	22.95	51.91	74.86	11.6	6.45
						60 hp			
32-52 ft (3 roller sections)	$42,200	29.47	5.63	5.26	40.36	84.97	125.33	24.4	5.14
						125 hp			
46-62 ft (5 roller sections)	$61,800	43.15	8.24	7.71	59.10	96.19	155.29	31.3	4.96
						160 hp			
64-85 ft (5 roller sections)	$80,200	56.00	10.69	10.00	76.70	124.22	200.92	43.2	4.65
						225 hp			

Annual hours of use: 75

Power unit cost includes fuel and labour (and margin) for tractor.

Rock Pickers

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
4-4.5 ft picking width	$27,200	23.88	5.44	4.40	33.72	53.89	87.61
						70 hp	
5-6 ft picking width	$32,800	28.80	6.56	5.30	40.66	56.07	96.73
						90 hp	

Annual hours of use: 50

Power unit cost includes fuel and labour (and margin) for tractor.

Rock Rake

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
8-9 ft	$9,800	10.26	1.96	1.83	14.06	48.97	63.02	4.9	12.86
						50 hp			
12-14 ft	$19,100	20.01	3.82	3.57	27.40	48.97	76.37	7.5	10.18
						50 hp			

Annual hours of use: 50

Power unit cost includes fuel and labour (and margin) for tractor.

Land Scraper

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
6.0-7.9 cu yard	$40,300	47.73	12.59	9.05	69.37	84.97	154.34
						130 hp	
8.0-9.0 cu yard	$51,800	61.35	16.19	11.63	89.16	102.65	191.81
						180 hp	
10.0-10.9 cu yard	$61,800	73.19	19.31	13.88	106.38	114.67	221.05
						200 hp	
11.0-12.9 cu yard	$87,000	103.03	27.19	19.53	149.75	132.23	281.98
						275 hp	
13.0-14.9 cu yard	$96,400	114.16	30.13	21.64	165.93	147.80	313.73
						330 hp	
15.0+ cu yard	$100,200	118.66	31.31	22.50	172.47	184.57	357.04
						425 hp	

Annual hours of use: 80

Power unit cost includes fuel and labour (and margin) for tractor.

Sprayers

High Clearance Sprayer

Machine Size	Purchase Price	Litre/ Hour	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on labour and fuel ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
600-799 US gal, 80 ft boom	$188,400	29	37.97	16.49	8.17	62.62	27.26	20.00	7.09	116.97	78	1.50
800-900 US gal, 90 ft boom	$260,600	36	52.52	22.80	11.30	86.62	33.84	20.00	8.08	148.54	89	1.67
800-900 US gal, 100 ft boom	$281,200	36	56.67	24.61	12.19	93.47	33.84	20.00	8.08	155.39	97	1.60
1000 US gal, 90 ft boom	$293,000	41	59.05	25.64	12.70	97.39	38.54	20.00	8.78	164.71	87	1.89
1000 US gal, 100 ft boom	$295,100	41	59.48	25.82	12.79	98.09	38.54	20.00	8.78	165.41	97	1.71
1000 US gal, 120 ft boom	$346,300	41	69.80	30.30	15.01	115.11	38.54	20.00	8.78	182.43	116	1.57
1200 US gal, 90 ft boom	$330,000	52	66.51	28.88	14.31	109.69	48.88	20.00	10.33	188.90	87	2.17
1200 US gal, 100 ft boom	$332,800	52	67.07	29.12	14.43	110.62	48.88	20.00	10.33	189.84	97	1.96
1200 US gal, 120 ft boom	$361,000	52	72.76	31.59	15.65	120.00	48.88	20.00	10.33	199.21	116	1.72

Annual hours of use: 400

Fuel type is diesel, with a 75 per cent load assumption. To calculate fuel consumption with alternative load, refer to Appendix H.
For cost of hauling water to field see Appendix A (C).
For a custom spraying operation, add a charge for liability insurance and administration.
GPS is included. To take GPS out, subtract $3.28/hr for guidance and autosteer equipment costs. Add an additional hourly fee of $3.00/hr if using prescription guidance.

PTO Sprayers

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
1000-1250 US gal, 80 ft boom	$42,800	40.55	12.84	8.01	61.40	84.97	146.37	70	2.09
						130 hp			
1000-1250 US gal, 90 ft boom	$43,400	41.12	13.02	8.12	62.26	84.97	147.23	70	2.10
						130 hp			
1000-1250 US gal, 100 ft boom	$41,800	39.60	12.54	7.82	59.96	84.97	144.94	120	1.21
						130 hp			
1500-1600 US gal, 80 ft boom	$47,500	45.00	14.25	8.89	68.14	124.22	192.36	70	2.75
						200 hp			
1500-1600 US gal, 90-99 ft boom	$48,500	45.95	14.55	9.07	69.57	124.22	193.79	70	2.77
						200 hp			
1500-1600 US gal, 100-109 ft boom	$48,700	46.14	14.61	9.11	69.86	124.22	194.08	120	1.62
						200 hp			
1500-1600 US gal, 110-119 ft boom	$46,200	43.77	13.86	8.64	66.28	124.22	190.49	120	1.59
						200 hp			
1500-1600 US gal, 120-129 ft boom	$48,700	46.14	14.61	9.11	69.86	124.22	194.08	120	1.62
						200 hp			
1500-1600 US gal, 130-139 ft boom	$49,500	46.90	14.85	9.26	71.01	124.22	195.23	120	1.63
						200 hp			

Annual hours of use: 100

For cost of hauling water to field see Appendix A (C).
Power unit cost includes fuel and labour (and margin) for tractor.

Miscellaneous

Snow Blower

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
Rear mount, 60-69"	$4,400	4.61	0.88	0.82	6.31	48.97	55.28
						50 hp	
Rear mount, 70-79"	$5,100	5.34	1.02	0.95	7.32	48.97	56.28
						50 hp	
Rear mount, 80-89"	$6,800	7.12	1.36	1.27	9.75	53.89	63.64
						70 hp	
Rear mount, 90-99"	$10,100	10.58	2.02	1.89	14.49	70.48	84.97
						110 hp	
Rear mount, 100"+	$14,300	14.98	2.86	2.68	20.51	96.19	116.70
						150 hp	

Annual hours of use: 50

Power unit cost includes fuel and labour (and margin) for tractor.

Front End Loader

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
For 40-59 hp tractor	$6,800	3.56	2.24	0.87	6.68	49.54	56.22
						50 hp	
For 50-99 hp tractor	$9,200	4.82	3.04	1.18	9.03	55.66	64.69
						75 hp	
For 100-149 hp tractor	$12,200	6.39	4.03	1.56	11.98	86.85	98.83
						125 hp	
For 150-199 hp tractor	$16,000	8.38	5.28	2.05	15.71	102.65	118.36
						175 hp	
For 200+ hp tractor	$18,800	9.85	6.20	2.41	18.46	124.22	142.67
						200 hp	

Annual hours of use: 100

Power unit cost includes fuel and labour (and margin) for tractor.

Post Pounders

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
310 lb hammer	$8,000	10.47	3.00	2.02	15.50	48.97	64.46
						55 hp	
660 lb hammer	$16,400	21.47	6.15	4.14	31.77	48.97	80.73
						55 hp	

Annual hours of use: 40

Power unit cost includes fuel and labour (and margin) for tractor.

Livestock Trailer

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
16 ft bumper	$12,700	8.44	2.54	1.65	12.63
20 ft gooseneck	$17,000	11.30	3.40	2.21	16.91
24 ft gooseneck	$20,300	13.50	4.06	2.63	20.19

Annual hours of use: 100

Tub Grinder

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
80-175 PTO hp	$48,600	21.54	9.72	4.69	35.95	102.65	138.61
						175 hp	
200-315 PTO hp	$76,900	34.09	15.38	7.42	56.89	156.67	213.56
						315 hp	

Annual hours of use: 150

Power unit cost includes fuel and labour (and margin) for tractor.
For alternative size tractors, refer to front wheel assist tractors in the power units section of this guide.

Vertical Feed Mixer

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
280-360 cu ft	$30,000	9.97	3.75	2.06	15.78	70.48	86.27
						110 hp	
500-750 cu ft	$51,000	16.96	6.38	3.50	26.83	84.97	111.80
						135 hp	
830-1150 cu ft	$71,400	23.74	8.93	4.90	37.56	96.19	133.75
						150 hp	

Annual hours of use: 200

Power unit cost includes fuel and labour (and margin) for tractor.

Manure Spreader (Solid)

Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
80-149 cu ft	$13,700	12.98	6.03	2.85	21.86	51.91	73.77
						60 hp	
150-199 cu ft	$18,400	17.43	8.10	3.83	29.36	56.07	85.43
						80 hp	
200-249 cu ft	$22,100	20.94	9.72	4.60	35.26	65.80	101.06
						90 hp	
250-299 cu ft	$24,500	23.21	10.78	5.10	39.09	84.97	124.06
						120 hp	
300-349 cu ft	$31,500	29.84	13.86	6.56	50.26	84.97	135.23
						120 hp	
350-399 cu ft	$38,500	36.48	16.94	8.01	61.43	84.97	146.40
						125 hp	
400-500 cu ft	$44,700	42.35	19.67	9.30	71.32	96.19	167.51
						150 hp	
250-300 ft^3, hydraulic push, vertical beaters	$43,200	40.93	19.01	8.99	68.93	84.97	153.90
						120 hp	
400-500 ft^3, hydraulic push, vertical beaters	$56,300	53.34	24.77	11.72	89.83	96.19	186.02
						150 hp	

Annual hours of use: 100

Power unit cost includes fuel and labour (and margin) for tractor.

Appendix A(A)

A. Hauling Grain from Field to Yard

Truck cost - excluding labour $110.68/hour*

Auger cost - 8inch x 60ft with gas engine (excluding labour) $9.68/hour

Labour cost $20.00/hour

Distance from Field to Yard (miles)	0.5	1	1.5	2	3	4
TIME USE						
(A) Time unload twice from one combine or once from each of two combines (min)	10	10	10	10	10	10
(B) Travel time to yard and return (min)	4	6.5	8.5	10	12	15
(C) Time truck running during unload (min)	4	4	4	4	4	4
(D) Truck running time per trip (min)	18	20.5	22.5	24	26	29
(E) Total unload time at bin (min)	7	7	7	7	7	7
Wait Time in Field (truck not running) (min)						
(F) Hauling from one combine (min)	47	44.5	42.5	41	39	36
(G) Hauling from two combines (min)	11	8.5	6.5	5	3	0
Total Time per Trip						
(H) Hauling from one combine (min)	68	68	68	68	68	68
(I) Hauling from two combines (min)	32	32	32	32	32	32
COMPONENT COSTS PER TRIP						
(J) Truck costs per trip	$33.20	$37.82	$41.51	$44.27	$47.96	$53.50
(K) Auger costs per trip	$1.13	$1.13	$1.13	$1.13	$1.13	$1.13
(L) Labour costs per trip (one combine)	$22.67	$22.67	$22.67	$22.67	$22.67	$22.67
(M) Labour costs per trip (two combines)	$10.67	$10.67	$10.67	$10.67	$10.67	$10.67
CUSTOM RATE ($/hr) (includes 15% margin)						
(N) Hauling from one combine	$57.84	$62.52	$66.26	$69.07	$72.81	$78.43
(O) Hauling from two combines	$97.03	$106.98	$114.93	$120.90	$128.85	$140.79
CUSTOM RATE ($/bu) (includes 15% margin)						
(P) Hauling from one combine (bu/hr = 300)	$0.19	$0.21	$0.22	$0.23	$0.24	$0.26
(Q) Hauling from one combine (bu/hr = 600)	$0.16	$0.18	$0.19	$0.20	$0.21	$0.23

Calculations used to determine costs:

D = A + B + C
H = A + B + E + F
I = A + B + E + G

J = D/(60 min/hr)*(truck cost)
K =E/(60 min/hr)*(auger cost)
L = H/(60 min/hr)*(labour cost)
M = I/(60 min/hr)*(labour cost)

# trips/hr one combine = (60 min/hr)/H
# trips/hr two combines = (60 min/hr)/I
N = (J + K + L)*(60 min/hr)/H*1.15
O = (J + K + M)*(60 min/hr)/I*1.15
P = N/(300 bu/hr)
Q = O/(600 bu/hr)

*Truck cost based on $120,000 purchase price, 150 hours of annual usage, 2.5 per cent repair and maintenance rate, and 15 year optimal life.

Appendix A(B)

B. Hauling Large Bales from Field to Yard

The following cost calculation of hauling large round bales from the field to the yard includes the cost of a large round bale mover, tractor and labour. The large round bale mover can pick up large round bales in the field, transport them to the yard, and unload them automatically.

Assume:

a. 12 bale PT large round bale mover custom rate	$113.07/hour
b. 120 horsepower tractor (included in custom rate for bales)	
c. Two mile haul takes 30 minutes (4 miles round trip)	24 bales/hour
d. Six mile haul takes 60 minutes (12 mile round trip)	12 bales/hour

Cost per bale - two mile haul $\frac{\$113.07}{24} = \$4.71$

Cost per bale - six mile haul $\frac{\$113.07}{12} = \$9.42$

Assume:

a. 18 bale PT large round bale mover custom rate	$152.34/hour
b. 180 horsepower tractor (included in custom rate for bales)	
c. Two mile haul takes 40 minutes (4 miles round trip)	27 bales/hour
d. Six mile haul takes 70 minutes (12 mile round trip)	15 bales/hour

Cost per bale - two mile haul $\frac{\$152.34}{27} = \$5.64$

Cost per bale - six mile haul $\frac{\$152.34}{15} = \$10.16$

Appendix A(C)

C. Hauling Water for Field Spraying - SP Sprayer

	2.5 gallon/acre		5.0 gallon/acre		10 gallon/acre		20 gallon/acre	
	part time driver	full time driver	part time driver	full time driver	part time driver	full time driver	part time driver	full time driver
(A) Acres sprayed/hr is avg. of 80' and 100' booms	99.0	99.0	94.5	94.5	85.5	85.5	67.5	67.5
(B) Labour cost/hr	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
(C) Truck cost/hr*	110.68	110.68	110.68	110.68	110.68	110.68	110.68	110.68
(D) Truck hauls 1200 gal/load	1200	1200	1200	1200	1200	1200	1200	1200
(E) Acres per load = 1200 gal/(gal/ac)	480	480	240	240	120	120	60	60
(F) Hours per load = 1200 gal/(gal/ac)/(ac/hr)	4.85	4.85	2.54	2.54	1.40	1.40	0.89	0.89
(G) Truck driving time going for water (min)	13.3	13.3	25.3	25.3	45.5	45.5	88.3	88.3
(H) Driving time in the field (min)	1.8	1.8	3.5	3.5	6.3	6.3	12.3	12.3
(I) Total time minutes per 160 acres (min)*	15.1	15.1	28.8	28.8	51.8	51.8	100.6	100.6
(J) Truck cost for 160 acres	27.85	27.85	53.13	53.13	95.55	95.55	185.57	185.57
(K) Labour cost for 160 acres	5.03	5.03	9.60	9.60	17.27	17.27	33.53	33.53
(L) Truck and labour cost for 160 acres	32.89	32.89	62.73	62.73	112.82	112.82	219.11	219.11
(M) Add 15% margin	4.93	4.93	9.41	9.41	16.92	16.92	32.87	32.87
(N) Total cost of hauling for 160 acres	37.82	37.82	72.14	72.14	129.74	129.74	251.97	251.97
(O) Cost of purchase or pumping water for 160 ac**	3.33	3.33	6.67	6.67	13.33	13.33	26.67	26.67
(P) Cost per 160 acres for hauling and water	41.15	41.15	78.80	78.80	143.08	143.08	278.64	278.64
(Q) Cost per acre of hauling water	0.26	0.26	0.49	0.49	0.89	0.89	1.74	1.74

* Based on one load taking 41 minutes ** Based on one load costing $10.00

Calculations used to determine values:

J = C*I/(60 min/hr)
K = B*I/(60 min/hr)
I = J + K
M = L*15%
N = L + M
O = gal/acre*acres/gal*cost/load
= 2.5*160/1200*10.00
P = N + O
Q = P/160

*Truck cost based on $120,000 purchase price, 150 hours of annual usage, 2.5% repair and maintenance rate, and 15 year optimal life.

Appendix A(D)

D. Rental of Farm Buildings

To determine the fair rental rate for farm buildings, consider:

	Your Value	Example
Replacement cost of building		$20,000
Retained value of building (at end of years of service)		$8,000
Interest rate (opportunity cost not included)		5.50%
Repair rate (% of replacement cost)*		0.50%
Annual insurance premium		$60
Optimal life		30

Calculate:

A. Depreciation:

(Replacement cost - Retained Value) / Optimal Life =

B. Interest Cost:

(Replacement cost) x (2.95 (Interest Rate) - 0.011) / Years of Loan = *

This assumes 50% borrowed and 10 year loan

C. Insurance:

Annual insurance premiums =

D. Repairs:

Annual repair rate x Replacement cost =

Total = A + B + C + D

Example		
A. Depreciation:	($20,000 - $8,000) / 30 =	$400
B. Interest Cost:	($20,000 x (2.95 (0.055) - 0.011)) / 10 =	$303
C. Insurance:	$60 =	$60
D. Repairs:	$20,000 x 0.005 =	$100

$863 per year
(divide by number of bushels to get $/year per bu)

Repair rates are difficult to estimate. Steel buildings (bins and quonsets) might be 0.5 per cent of replacement cost per year. Aeration fans might be higher. Wood buildings might be 1 to 3 per cent of the replacement cost.

For bins with aeration or natural air drying, include the purchase cost of the fan and air distribution system in the replacement cost value. Add $0.52/hr for a 7 hp fan, $0.37/hr for a 5 hp fan and $0.22/hr for a 3 hp fan for electricity costs.

* Previous Custom and Rental Rate Guides have used a different calculation:
$\frac{(\text{Purchase Price} + \text{Retained Value})}{2}$ X interest rate

Appendix B

Self Propelled Combine Classification (Current Models)

Size	Acre/Hour	Manufacturer	Model
Class 5	≤ 267 hp / 250 bu hopper	John Deere	S550
	8 ac/hr	CASE IH	5088
Class 6	268-322 hp / 300-315 bu hopper	CNH	CX8070
	9-10 ac/hr	CNH	CR6090
		John Deere	S660
		CASE IH	6088
		Gleaner	S67
		Gleaner	A66
		Claas Lexion	730
		MF	9520
Class 7	323-374 hp / 300-370 bu hopper	CNH	CX8080
	11-12 ac/hr	CNH	CR7090
		John Deere	T670
		John Deere	S670
		CASE IH	7088
		CASE IH	7120
		Gleaner	S77
		Gleaner	A76
		Claas Lexion	670
		Class Lexion	740
		MF	9540
Class 8	375-461 hp / 350-400 bu hopper	CNH	CX8090
	14-15 ac/hr	CNH	CR8090
		John Deere	S680
		CASE IH	8120
		Gleaner	A86
		Claas Lexion	680
		Claas Lexion	750
		MF	9560
Class 9	≥ 462 hp / 350-400 bu hopper	CNH	CR9090
	17 ac/hr	John Deere	S690
		CASE IH	9120
		Claas Lexion	760
		Claas Lexion	770

Appendix C

Formulas Used in Calculations

A) **Ownership costs** per hour are the sum of (i) Depreciation, (ii) Investment costs, (iii) Insurance and Housing.

i) Depreciation represents the "value" of equipment over the hours it is owned.

$$\text{Depreciation Cost } \left(\frac{\$}{hr}\right) = \frac{\text{Purchase Price - Retained Value}}{\text{Optimal Life}} \text{ / (Annual hrs of use)}$$

Where:

- *Purchase price* = average purchase price of manufacturer's base list price and the list price with all available options($)
- *Retained value* = value of equipment at end of ownership ($)
- *Optimal Life* = number of years before trade-in or 2/3 of useful life (yr)
- *Annual hours of use* = typical number of hours equipment is used in one year (hr)

For example a conventional combine, with a purchase price of $300,000, has a retained value of $100,000 at the end of its optimal life, assuming 200 hours of annual usage, with a depreciation cost of:

$$\text{Depreciation Cost } \left(\frac{\$}{hr}\right) = \frac{300{,}000 - 100{,}000}{15} \text{ / } 200 = \$66.67/hr$$

ii) Investment represents the interest cost of borrowing money to purchase the equipment along with the opportunity cost of the down payment.

It is assumed that 50% of the purchase price is financed over a 10 year loan term (120 months). The interest is compounded monthly, so each month is considered one payment period.

Amortization tables were used to determine the total interest paid over the 10 year loan. This total interest cost was divided by the optimal life and annual hours of use (see Appendix F) to determine an interest cost per hour.

A simplified equation was then developed, based on the amortization tables, to calculate the total interest cost over the life of the loan:

$$\text{Interest Cost } \left(\frac{\$}{hr}\right) = \frac{\text{Purchase Price}\left\{\left[2.95\left(\frac{\text{Interest Rate\%}}{100\%}\right)\right] - 0.011\right\}}{\text{Optimal Life}} \text{ / Annual hrs of Use}$$

The interest rate used in the equation included the actual borrowing rate (5.5% on average) plus the opportunity cost of the down payment (the down payment could have been invested instead at an average of 1%). Since 50% of the purchase price is financed and 50% is paid down, the interest rate used in the equation is the sum of the two (6.5%).

For example, a conventional combine (interest rate = 5.5%, opportunity rate = 1%, $300,000 purchase price, 15 year optimal life, 200 hours annual usage):

$$\text{Interest Cost } \left(\frac{\$}{hr}\right) = \frac{300{,}000\left\{\left[2.95\left(\frac{6.5\%}{100\%}\right)\right] - 0.011\right\}}{15} \text{ / } 200$$

$$\text{Interest Cost } \left(\frac{\$}{hr}\right) = \frac{300{,}000\{0.18075\}}{15} \text{ / } 200$$

$$\text{Interest Cost} = \$18.08/hr$$

iii) Insurance and Housing are assumed to be 1% of the purchase price per year

For example a conventional combine with a $300,000 purchase price and 200 hours/year:

$$\text{Insurance \& Housing Cost } \left(\frac{\$}{hr}\right) = \frac{300{,}000 \times \left(\frac{1\%}{100\%}\right)}{200} = \$15/hr$$

B) Repair and Maintenance Costs are calculated based on a repair rate that represents the repair costs per year of ownership. These repair rates were determined by estimating the total repair and maintenance costs over the ownership of the equipment (including oil and filters, general maintenance and one major rebuild). The total repair cost was divided by the ownership years and purchase price to determine the repair rates used in the guide.

$$\text{Repair and Maintenance Cost } \left(\frac{\$}{hr}\right) = \frac{\text{Purchase Price} \times \left(\frac{\text{Repair Rate\%}}{100\%}\right)}{\text{Annual hrs of use}}$$

For example, for a conventional combine, the annual cost of a repair program is approximately $3,000, the annual cost of oil changes is approximately $500 and the cost of one major rebuild is approximately $70,000 ($4,666 per year assuming 15 yrs ownership). Therefore, the total repair cost per year is $8,166. This represents 2.8% of the purchase price.

$$\text{Repair and Maintenance Cost } \left(\frac{\$}{hr}\right) = \frac{300{,}000 \times \left(\frac{2.8\%}{100\%}\right)}{200} = \$42/hr$$

C) Margin on Ownership and Repair and Maintenance represents farmer profit and is calculated by:

$$\text{Margin} = \left(\frac{\text{Margin (\%)}}{100\%}\right) (\text{Ownership cost} + \text{Repair and Maintenance Cost})$$

D) Rental Rate per hour is the sum of the Ownership Costs, Repair and Maintenance Costs, and Margin on Ownership and Repair and Maintenance.

$$\text{Rental Rate } \left(\frac{\$}{hr}\right) = \text{Ownership Cost} + \text{Repair and Maintenance Cost} + \text{Margin on R\&M}$$

E) Fuel Costs are calculated by:

$$\text{Fuel cost } \left(\frac{\$}{hr}\right) = \text{Fuel Efficiency } \left(\frac{L}{hr}\right) \times \text{Price of Fuel } \left(\frac{\$}{L}\right)$$

For example, for a conventional combine the fuel efficiency is approximately 30 L/hr and the price of diesel is $0.94/L:

$$\text{Fuel cost } \left(\frac{\$}{hr}\right) = 30 \times (0.94) = \$28.20/hr$$

F) Labour Costs are assumed to be $20/hr.

G) Margin on Fuel and Labour is calculated by:

$$\text{Margin} = \left(\frac{\text{Margin (\%)}}{100\%}\right) \times (\text{Fuel cost} + \text{Labour Cost})$$

H) Custom Rate per hour is the sum of the Rental Rate, Fuel and Labour Cost, and a Margin on fuel and labour.

$$Custom\ Rate\ (\frac{\$}{hr}) = Rental\ Rate\ Rate\ (\frac{\$}{hr}) + Fuel\ Cost\ (\frac{\$}{hr}) + Labour\ (\frac{\$}{hr}) + Margin\ on\ fuel\ and\ labour\ (\frac{\$}{hr})$$

The custom rental rate (per acre) is calculated by:

$$Custom\ Rate\ (\frac{\$}{acre}) = \frac{Custom\ Rate\ (\frac{\$}{acre})}{Work\ Rate\ (\frac{acre}{hr})}$$

For example, for a conventional combine, a rental rate for a header is $11.66/hr and the work rate of the combine and header combined is 9 acre/hr

$$Custom\ Rate\ (\frac{\$}{acre}) = \frac{25.68 + 11.66}{9} = 23.67/acre$$

Appendix D

Rental Rate Calculation Worksheet

The Ownership Cost per hour is the sum of (i) Depreciation Costs, (ii) Investment Costs, and (iii) Insurance and Housing Costs.

$$\text{i) } \textit{Depreciation Cost } \left(\frac{\$}{hr}\right) = \frac{\left(\frac{\textit{Purchase Price-Retained Value}}{\textit{Optimal Life}}\right)}{\textit{Annual Hours of Use}}$$

$$\text{ii) } \textit{Investment Cost } \left(\frac{\$}{hr}\right) = \frac{\left(\frac{\textit{Purchase Price x (2.95 x Interest Rate - 0.011)}}{\textit{Optimal Life}}\right)}{\textit{Annual Hours of Use}}$$

The total cost of borrowing depends on the interest rate and the purchase price. The regression factors in the above equation (2.95 and 0.011) account for this. This calculation assumes that 50% of the purchase price is borrowed and the payback period of the loan is 10 years and equal payments are made annually.

$$\text{iii) } \textit{Insurance and Housing Cost } \left(\frac{\$}{hr}\right) = \frac{\textit{Purchase Price x 0.01}}{\textit{Annual Hours of Use}}$$

The total rental rate ($/hr) is the sum of the Ownership Cost, Repair and Maintenance Cost, and Margin.

$$\text{iv) } \textit{Repair and Maintenance Cost } \left(\frac{\$}{hr}\right) = \frac{\textit{Repair Rate x Purchase Price}}{\textit{Annual Hours of Use}}$$

$$\text{v) } \textit{Margin } \left(\frac{\$}{hr}\right) = \textit{Margin x (Ownership Cost+Repair and Maintenance Cost)}$$

The rental rate ($/acre) can be estimated by dividing the total rental rate ($/hr) by the work rate (acre/hr).

$$\text{vi) } \textit{Work Rate } \left(\frac{\$}{hr}\right) = \textit{Width (ft) x Speed (mph) x Field Efficiency x} \frac{\textit{5280 ft/mile}}{\textit{43560ft}^2\textit{/acre}}$$

The **purchase price** is the cash value of the new equipment without a trade-in.

The **retained value** of the equipment is the value at the end of its optimal life (assumed to be 33% of the purchase price).

The **optimal life** of the equipment is the years of useful life before trade-in (refer to Appendix F for typical values).

The **annual hours of use are** the typical number of hours equipment is used in one year (refer to Appendix F for typical values).

The **interest rate** can be used to represent the cost of borrowing only or the cost of borrowing plus the lost revenue of investment. For this calculation, the interest rate must be presented as a decimal (e.g.: 5% = 0.05).

Typical **repair rates** for equipment can be found in Appendix F. The repair rate must be presented as a decimal (e.g.: 2% = 0.02).

The **margin** represents a profit for the farmer (assumed to be 15%). The margin must be presented as a decimal (e.g.: 15% = 0.15).

The **width** represents the implement width.

The **speed** is the average ground speed.

The **field efficiency** accounts for time spent turning, filling, and emptying equipment. Average field efficiency for tillage operations is 80%. Average field efficiency for seeding and harvesting operations is 69%. The field efficiency must be presented as a decimal (e.g.: 69% = 0.69).

Appendix E

Custom Rate Calculation Worksheet

The custom rate ($/hr) is the sum of the rental rate ($/hr, Appendix C), the fuel cost ($/hr), the labour cost ($/hr) and the margin on fuel and labour ($/hr). Custom operations may include costs for a power unit only (e.g.: combine) or a power unit and equipment (e.g.: tractor and air seeder).

Power Unit Cost ($/hr) = Rental Rate + Fuel Cost + Labour Cost + Margin on Fuel and Labour

i) Use Appendix C to calculate the rental rate of the power unit ($\frac{\$}{hr}$)

ii) *Fuel Cost* ($\frac{\$}{hr}$) = *Fuel usage* ($\frac{L}{hr}$) x *Fuel price* ($\frac{\$}{L}$)

Fuel usage can be estimated using the chart in Appendix H

iii) *Labour Cost* ($\frac{\$}{hr}$)

iv) *Margin on Fuel and Labour* ($\frac{\$}{hr}$) = *Margin x (Fuel Cost+Labour Cost)*

Machine Cost ($/hr) = rental rate based on Appendix C (if applicable)

Total Custom Rate ($\frac{\$}{hr}$) = *Power Unit Cost + Machine Cost*

$$\textit{Total Custom Rate } (\tfrac{\$}{acre}) = \frac{\textit{(Power Unit Cost (\$/hr)+Machine Cost (\$/hr)}}{\textit{Work Rate (acre/hr)}}$$

v) *Work Rate* ($\frac{acre}{hr}$) = *Width (ft) x Speed (mph) x Field Efficiency x* $\frac{5280\ ft/mile}{43560 ft^2/acre}$

Appendix F

Machinery Cost Calculation Guide

Machine	Column A Annual Hours of Usage	Column B Optimal Life (years)	Column C Repair Rate (% of purchase price)
Tractors			
2WD	300	20	2.2
Front wheel assist	450	15	2.6
4WD	450	15	2.5
Tracked	450	15	3.2
Combines			
SP Conventional	200	15	2.0
SP Rotary	250	12	2.5
Combine headers			
Rigid headers with batt reels	250	20	2.0
Pickup headers	250	20	1.5
Flex headers with pickup reels	250	15	2.5
Draper headers with pickup reels	250	15	2.5
Corn headers	100	15	2.8
Swathers SP	200	15	2.0
Swath rollers	100	20	1.0
Grain bag loaders	100	12	2.0
Grain bag extractors	100	12	2.0
Grain vacs	50	15	2.0
Grain carts	250	20	2.0
Grain dryers	150	15	1.25
Powered augers	100	20	1.5
PTO augers	100	20	1.0
Belt conveyors	100	10	2.1
SP Mower/conditioner	150	15	3.20
PT Mower/conditioner (sickle)	150	15	2.0
PT Mower/conditioner (disc)	150	15	2.5
Hay Rakes	50	20	2.0
Forage Harvesters			
Powered	400	10	8.0
Pull-type	100	10	8
Balers			
Round	100	15	1.5
Large square	150	15	1.7
Small square	100	20	1.0
Bale movers			
Large round	100	15	2.5
Large square	100	15	2.5
Small square	100	20	1.5
Bale Processors	200	15	3.0
Grinder mixers and feed mixers	200	15	3.0
Air drills (independent openers)	200	15	3.5
Air disk drills	200	15	3.0

Machinery Cost Calculation Guide

Machine	Column A Annual Hours of Usage	Column B Optimal Life (years)	Column C Repair Rate (% of purchase price)
Air hoe drills	200	15	3.0
Air seeder	200	15	3.0
Ammonia applicator	200	15	2.0
Liquid fertilizer applicator	200	15	2.0
Granular fertilizer applicator	100	20	1.5
Row crop planter	100	10	4.0
Cultivators field	200	20	1.5
Cultivator heavy duty	200	20	1.5
Heavy offset discs	50	20	3.0
Heavy tandem discs	150	20	3.0
Standard harrows	75	25	1.2
Heavy harrows	100	20	1.5
Harrow packers	200	25	0.5
Land rollers	75	20	1.0
Rock pickers	50	25	1.0
Rock rakes	50	20	1.0
Land scraper	80	10	2.5
High clearance sprayers	400	12	3.5
PTO sprayers	100	10	3
Snow blower	50	20	1.0
Post pounder	40	20	1.5
Front end loader	100	20	3.3
Livestock trailers	100	15	2.0
Tub grinder	150	15	3.0
Vertical feed mixer	200	15	2.5
GPS Precision farming add-on	500	10	1.0

Appendix G

Factors to Consider When Custom Hiring

Custom hiring is a business arrangement. The terms of the arrangement should be written in a formal agreement. If unwritten, the terms are more likely to be misunderstood in case of a dispute. The following factors should be considered in a custom hiring agreement:

Timeliness

Significant loss can occur if an operation is not started or completed on time. To facilitate planning, a custom hiring agreement should include a schedule of operations for both parties. For example, when the custom combiner is picking up swathed grain, the schedule will outline time periods for swathing by the owner and combining by the custom operator. Such a schedule will be subject to weather conditions and crop maturity.

Operations

The parties should write into the agreement the exact operations to be performed by each party and the machine, materials and labour to be supplied by each.

Rate Schedule

The custom operator should stipulate the rate for each operation to be performed on the basis of acreage, time (hour, day, and week) or total operation performed.

Management

A custom hiring agreement should ensure that the custom operator will employ acceptable management practices in his/her operations.

Terms of Payment

A custom hiring agreement should stipulate terms of payment for custom operations. As well, the custom operator should bill the client upon the completion of each custom operation. The bill should indicate actual units (hours, acres, etc.) completed, the rate charged per unit, the total charge and payment due date.

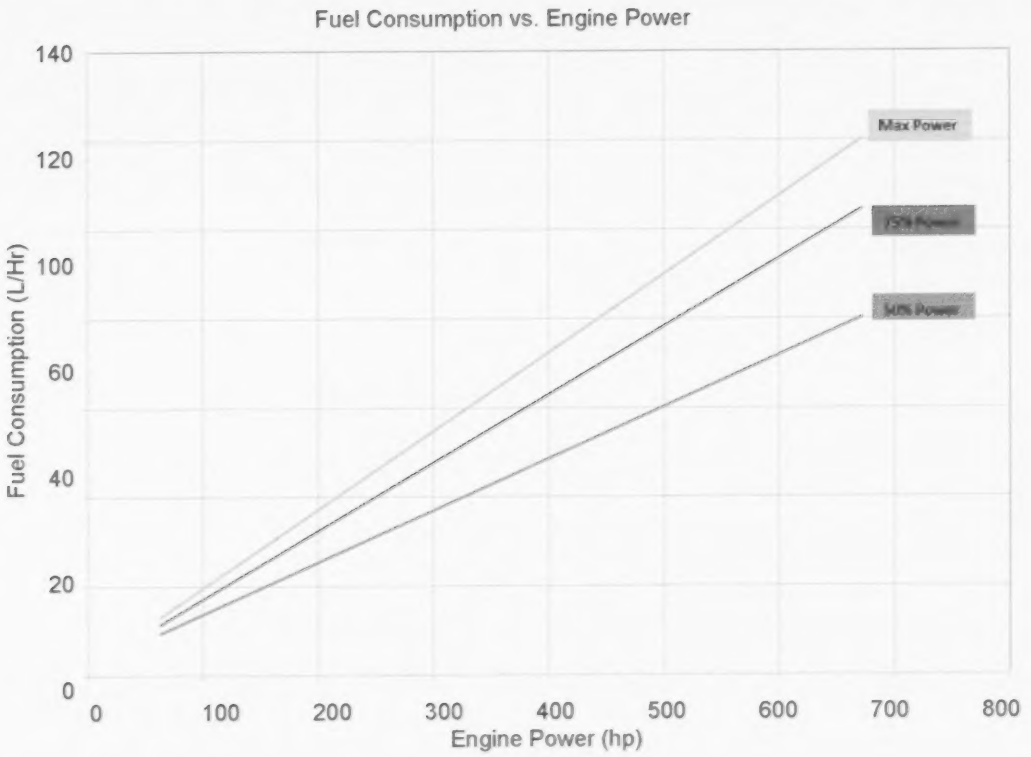
Termination

A minimum period for notice of termination should be included in a custom hiring agreement. A penalty should be stipulated for unjustified termination within the term of the agreement.

Insurance

A custom operator may be considered differently than a farmer when insuring. It is advised that this point be clarified with the insurance company if one considers doing custom work or renting equipment.

Appendix H


Fuel Consumption vs. Engine Power
140
120
100
60
40
20
0
Fuel Consumption (L/Hr)
0
100
200
300
400
500
600
700
800
Engine Power (hp)
Max Power

Appendix I

Hectares or acres per hour	Dollars per Hectare or Acre Dollars Per Hour												
	$20.00	$30.00	$40.00	$50.00	$60.00	$70.00	$80.00	$90.00	$100.00	$110.00	$120.00	$130.00	$140.00
2.0	$10.00	$15.00	$20.00	$25.00	$30.00	$35.00	$40.00	$45.00	$50.00	$55.00	$60.00	$65.00	$70.00
2.5	$8.00	$12.00	$16.00	$20.00	$24.00	$28.00	$32.00	$36.00	$40.00	$44.00	$48.00	$52.00	$56.00
3.0	$6.67	$10.00	$13.33	$16.67	$20.00	$23.33	$26.67	$30.00	$33.33	$36.67	$40.00	$43.33	$46.67
3.5	$5.71	$8.57	$11.43	$14.29	$17.14	$20.00	$22.86	$25.71	$28.57	$31.43	$34.29	$37.14	$40.00
4.0	$5.00	$7.50	$10.00	$12.50	$15.00	$17.50	$20.00	$22.50	$25.00	$27.50	$30.00	$32.50	$35.00
4.5	$4.44	$6.67	$8.89	$11.11	$13.33	$15.56	$17.78	$20.00	$22.22	$24.44	$26.67	$28.89	$31.11
5.0	$4.00	$6.00	$8.00	$10.00	$12.00	$14.00	$16.00	$18.00	$20.00	$22.00	$24.00	$26.00	$28.00
5.5	$3.64	$5.45	$7.27	$9.09	$10.91	$12.73	$14.55	$16.36	$18.18	$20.00	$21.82	$23.64	$25.45
6.0	$3.33	$5.00	$6.67	$8.33	$10.00	$11.67	$13.33	$15.00	$16.67	$18.33	$20.00	$21.67	$23.33
6.5	$3.08	$4.62	$6.15	$7.69	$9.23	$10.77	$12.31	$13.85	$15.38	$16.92	$18.46	$20.00	$21.54
7.0	$2.86	$4.29	$5.71	$7.14	$8.57	$10.00	$11.43	$12.86	$14.29	$15.71	$17.14	$18.57	$20.00
7.5	$2.67	$4.00	$5.33	$6.67	$8.00	$9.33	$10.67	$12.00	$13.33	$14.67	$16.00	$17.33	$18.67
8.0	$2.50	$3.75	$5.00	$6.25	$7.50	$8.75	$10.00	$11.25	$12.50	$13.75	$15.00	$16.25	$17.50
8.5	$2.35	$3.53	$4.71	$5.88	$7.06	$8.24	$9.41	$10.59	$11.76	$12.94	$14.12	$15.29	$16.47
9.0	$2.22	$3.33	$4.44	$5.56	$6.67	$7.78	$8.89	$10.00	$11.11	$12.22	$13.33	$14.44	$15.56
9.5	$2.11	$3.16	$4.21	$5.26	$6.32	$7.37	$8.42	$9.47	$10.53	$11.58	$12.63	$13.68	$14.74
10.0	$2.00	$3.00	$4.00	$5.00	$6.00	$7.00	$8.00	$9.00	$10.00	$11.00	$12.00	$13.00	$14.00
10.5	$1.90	$2.86	$3.81	$4.76	$5.71	$6.67	$7.62	$8.57	$9.52	$10.48	$11.43	$12.38	$13.33
11.0	$1.82	$2.73	$3.64	$4.55	$5.45	$6.36	$7.27	$8.18	$9.09	$10.00	$10.91	$11.82	$12.73
11.5	$1.74	$2.61	$3.48	$4.35	$5.22	$6.09	$6.96	$7.83	$8.70	$9.57	$10.43	$11.30	$12.17
12.0	$1.67	$2.50	$3.33	$4.17	$5.00	$5.83	$6.67	$7.50	$8.33	$9.17	$10.00	$10.83	$11.67
12.5	$1.60	$2.40	$3.20	$4.00	$4.80	$5.60	$6.40	$7.20	$8.00	$8.80	$9.60	$10.40	$11.20
13.0	$1.54	$2.31	$3.08	$3.85	$4.62	$5.38	$6.15	$6.92	$7.69	$8.46	$9.23	$10.00	$10.77
13.5	$1.48	$2.22	$2.96	$3.70	$4.44	$5.19	$5.93	$6.67	$7.41	$8.15	$8.89	$9.63	$10.37
14.0	$1.43	$2.14	$2.86	$3.57	$4.29	$5.00	$5.71	$6.43	$7.14	$7.86	$8.57	$9.29	$10.00
14.5	$1.38	$2.07	$2.76	$3.45	$4.14	$4.83	$5.52	$6.21	$6.90	$7.59	$8.28	$8.97	$9.66
15.0	$1.33	$2.00	$2.67	$3.33	$4.00	$4.67	$5.33	$6.00	$6.67	$7.33	$8.00	$8.67	$9.33
15.5	$1.29	$1.94	$2.58	$3.23	$3.87	$4.52	$5.16	$5.81	$6.45	$7.10	$7.74	$8.39	$9.03
16.0	$1.25	$1.88	$2.50	$3.13	$3.75	$4.38	$5.00	$5.63	$6.25	$6.88	$7.50	$8.13	$8.75
16.5	$1.21	$1.82	$2.42	$3.03	$3.64	$4.24	$4.85	$5.45	$6.06	$6.67	$7.27	$7.88	$8.48
17.0	$1.18	$1.76	$2.35	$2.94	$3.53	$4.12	$4.71	$5.29	$5.88	$6.47	$7.06	$7.65	$8.24
17.5	$1.14	$1.71	$2.29	$2.86	$3.43	$4.00	$4.57	$5.14	$5.71	$6.29	$6.86	$7.43	$8.00
18.0	$1.11	$1.67	$2.22	$2.78	$3.33	$3.89	$4.44	$5.00	$5.56	$6.11	$6.67	$7.22	$7.78

	Dollars per Hectare or Acre												
Hectares or acres per hour	**Dollars Per Hour**												
	$150.00	$160.00	$170.00	$180.00	$190.00	$200.00	$210.00	$220.00	$230.00	$240.00	$250.00	$260.00	$270.00
4.0	$37.50	$40.00	$42.50	$45.00	$47.50	$50.00	$52.50	$55.00	$57.50	$60.00	$62.50	$65.00	$67.50
4.5	$33.33	$35.56	$37.78	$40.00	$42.22	$44.44	$46.67	$48.89	$51.11	$53.33	$55.56	$57.78	$60.00
5.0	$30.00	$32.00	$34.00	$36.00	$38.00	$40.00	$42.00	$44.00	$46.00	$48.00	$50.00	$52.00	$54.00
5.5	$27.27	$29.09	$30.91	$32.73	$34.55	$36.36	$38.18	$40.00	$41.82	$43.64	$45.45	$47.27	$49.09
6.0	$25.00	$26.67	$28.33	$30.00	$31.67	$33.33	$35.00	$36.67	$38.33	$40.00	$41.67	$43.33	$45.00
6.5	$23.08	$24.62	$26.15	$27.69	$29.23	$30.77	$32.31	$33.85	$35.38	$36.92	$38.46	$40.00	$41.54
7.0	$21.43	$22.86	$24.29	$25.71	$27.14	$28.57	$30.00	$31.43	$32.86	$34.29	$35.71	$37.14	$38.57
7.5	$20.00	$21.33	$22.67	$24.00	$25.33	$26.67	$28.00	$29.33	$30.67	$32.00	$33.33	$34.67	$36.00
8.0	$18.75	$20.00	$21.25	$22.50	$23.75	$25.00	$26.25	$27.50	$28.75	$30.00	$31.25	$32.50	$33.75
8.5	$17.65	$18.82	$20.00	$21.18	$22.35	$23.53	$24.71	$25.88	$27.06	$28.24	$29.41	$30.59	$31.76
9.0	$16.67	$17.78	$18.89	$20.00	$21.11	$22.22	$23.33	$24.44	$25.56	$26.67	$27.78	$28.89	$30.00
9.5	$15.79	$16.84	$17.89	$18.95	$20.00	$21.05	$22.11	$23.16	$24.21	$25.26	$26.32	$27.37	$28.42
10.0	$15.00	$16.00	$17.00	$18.00	$19.00	$20.00	$21.00	$22.00	$23.00	$24.00	$25.00	$26.00	$27.00
10.5	$14.29	$15.24	$16.19	$17.14	$18.10	$19.05	$20.00	$20.95	$21.90	$22.86	$23.81	$24.76	$25.71
11.0	$13.64	$14.55	$15.45	$16.36	$17.27	$18.18	$19.09	$20.00	$20.91	$21.82	$22.73	$23.64	$24.55
11.5	$13.04	$13.91	$14.78	$15.65	$16.52	$17.39	$18.26	$19.13	$20.00	$20.87	$21.74	$22.61	$23.48
12.0	$12.50	$13.33	$14.17	$15.00	$15.83	$16.67	$17.50	$18.33	$19.17	$20.00	$20.83	$21.67	$22.50
12.5	$12.00	$12.80	$13.60	$14.40	$15.20	$16.00	$16.80	$17.60	$18.40	$19.20	$20.00	$20.80	$21.60
13.0	$11.54	$12.31	$13.08	$13.85	$14.62	$15.38	$16.15	$16.92	$17.69	$18.46	$19.23	$20.00	$20.77
13.5	$11.11	$11.85	$12.59	$13.33	$14.07	$14.81	$15.56	$16.30	$17.04	$17.78	$18.52	$19.26	$20.00
14.0	$10.71	$11.43	$12.14	$12.86	$13.57	$14.29	$15.00	$15.71	$16.43	$17.14	$17.86	$18.57	$19.29
14.5	$10.34	$11.03	$11.72	$12.41	$13.10	$13.79	$14.48	$15.17	$15.86	$16.55	$17.24	$17.93	$18.62
15.0	$10.00	$10.67	$11.33	$12.00	$12.67	$13.33	$14.00	$14.67	$15.33	$16.00	$16.67	$17.33	$18.00
15.5	$9.68	$10.32	$10.97	$11.61	$12.26	$12.90	$13.55	$14.19	$14.84	$15.48	$16.13	$16.77	$17.42
16.0	$9.38	$10.00	$10.63	$11.25	$11.88	$12.50	$13.13	$13.75	$14.38	$15.00	$15.63	$16.25	$16.88
16.5	$9.09	$9.70	$10.30	$10.91	$11.52	$12.12	$12.73	$13.33	$13.94	$14.55	$15.15	$15.76	$16.36
17.0	$8.82	$9.41	$10.00	$10.59	$11.18	$11.76	$12.35	$12.94	$13.53	$14.12	$14.71	$15.29	$15.88
17.5	$8.57	$9.14	$9.71	$10.29	$10.86	$11.43	$12.00	$12.57	$13.14	$13.71	$14.29	$14.86	$15.43
18.0	$8.33	$8.89	$9.44	$10.00	$10.56	$11.11	$11.67	$12.22	$12.78	$13.33	$13.89	$14.44	$15.00
18.5	$8.11	$8.65	$9.19	$9.73	$10.27	$10.81	$11.35	$11.89	$12.43	$12.97	$13.51	$14.05	$14.59
19.0	$7.89	$8.42	$8.95	$9.47	$10.00	$10.53	$11.05	$11.58	$12.11	$12.63	$13.16	$13.68	$14.21
19.5	$7.69	$8.21	$8.72	$9.23	$9.74	$10.26	$10.77	$11.28	$11.79	$12.31	$12.82	$13.33	$13.85
20.0	$7.50	$8.00	$8.50	$9.00	$9.50	$10.00	$10.50	$11.00	$11.50	$12.00	$12.50	$13.00	$13.50

Hectares or acres per hour	Dollars per Hectare or Acre Dollars Per Hour												
	$40.00	$50.00	$60.00	$70.00	$80.00	$90.00	$100.00	$110.00	$120.00	$130.00	$140.00	$150.00	$160.00
10	$4.00	$5.00	$6.00	$7.00	$8.00	$9.00	$10.00	$11.00	$12.00	$13.00	$14.00	$15.00	$16.00
12	$3.33	$4.17	$5.00	$5.83	$6.67	$7.50	$8.33	$9.17	$10.00	$10.83	$11.67	$12.50	$13.33
14	$2.86	$3.57	$4.29	$5.00	$5.71	$6.43	$7.14	$7.86	$8.57	$9.29	$10.00	$10.71	$11.43
16	$2.50	$3.13	$3.75	$4.38	$5.00	$5.63	$6.25	$6.88	$7.50	$8.13	$8.75	$9.38	$10.00
18	$2.22	$2.78	$3.33	$3.89	$4.44	$5.00	$5.56	$6.11	$6.67	$7.22	$7.78	$8.33	$8.89
20	$2.00	$2.50	$3.00	$3.50	$4.00	$4.50	$5.00	$5.50	$6.00	$6.50	$7.00	$7.50	$8.00
22	$1.82	$2.27	$2.73	$3.18	$3.64	$4.09	$4.55	$5.00	$5.45	$5.91	$6.36	$6.82	$7.27
24	$1.67	$2.08	$2.50	$2.92	$3.33	$3.75	$4.17	$4.58	$5.00	$5.42	$5.83	$6.25	$6.67
26	$1.54	$1.92	$2.31	$2.69	$3.08	$3.46	$3.85	$4.23	$4.62	$5.00	$5.38	$5.77	$6.15
28	$1.43	$1.79	$2.14	$2.50	$2.86	$3.21	$3.57	$3.93	$4.29	$4.64	$5.00	$5.36	$5.71
30	$1.33	$1.67	$2.00	$2.33	$2.67	$3.00	$3.33	$3.67	$4.00	$4.33	$4.67	$5.00	$5.33
100	$0.40	$0.50	$0.60	$0.70	$0.80	$0.90	$1.00	$1.10	$1.20	$1.30	$1.40	$1.50	$1.60
110	$0.36	$0.45	$0.55	$0.64	$0.73	$0.82	$0.91	$1.00	$1.09	$1.18	$1.27	$1.36	$1.45
120	$0.33	$0.42	$0.50	$0.58	$0.67	$0.75	$0.83	$0.92	$1.00	$1.08	$1.17	$1.25	$1.33
130	$0.31	$0.38	$0.46	$0.54	$0.62	$0.69	$0.77	$0.85	$0.92	$1.00	$1.08	$1.15	$1.23
140	$0.29	$0.36	$0.43	$0.50	$0.57	$0.64	$0.71	$0.79	$0.86	$0.93	$1.00	$1.07	$1.14
150	$0.27	$0.33	$0.40	$0.47	$0.53	$0.60	$0.67	$0.73	$0.80	$0.87	$0.93	$1.00	$1.07
160	$0.25	$0.31	$0.38	$0.44	$0.50	$0.56	$0.63	$0.69	$0.75	$0.81	$0.88	$0.94	$1.00
170	$0.24	$0.29	$0.35	$0.41	$0.47	$0.53	$0.59	$0.65	$0.71	$0.76	$0.82	$0.88	$0.94
180	$0.22	$0.28	$0.33	$0.39	$0.44	$0.50	$0.56	$0.61	$0.67	$0.72	$0.78	$0.83	$0.89
190	$0.21	$0.26	$0.32	$0.37	$0.42	$0.47	$0.53	$0.58	$0.63	$0.68	$0.74	$0.79	$0.84
200	$0.20	$0.25	$0.30	$0.35	$0.40	$0.45	$0.50	$0.55	$0.60	$0.65	$0.70	$0.75	$0.80
210	$0.19	$0.24	$0.29	$0.33	$0.38	$0.43	$0.48	$0.52	$0.57	$0.62	$0.67	$0.71	$0.76
220	$0.18	$0.23	$0.27	$0.32	$0.36	$0.41	$0.45	$0.50	$0.55	$0.59	$0.64	$0.68	$0.73
230	$0.17	$0.22	$0.26	$0.30	$0.35	$0.39	$0.43	$0.48	$0.52	$0.57	$0.61	$0.65	$0.70
240	$0.17	$0.21	$0.25	$0.29	$0.33	$0.38	$0.42	$0.46	$0.50	$0.54	$0.58	$0.63	$0.67
250	$0.16	$0.20	$0.24	$0.28	$0.32	$0.36	$0.40	$0.44	$0.48	$0.52	$0.56	$0.60	$0.64

Hectares per Hour (at 80% field efficiency)													
Speed in km/h	Width in Metres												
	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0
2	0.32	0.48	0.64	0.80	0.96	1.12	1.28	1.44	1.60	1.76	1.92	2.08	2.24
4	0.64	0.96	1.28	1.60	1.92	2.24	2.56	2.88	3.20	3.52	3.84	4.16	4.48
5	0.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00	4.40	4.80	5.20	5.60
6	0.96	1.44	1.92	2.40	2.88	3.36	3.84	4.32	4.80	5.28	5.76	6.24	6.72
7	1.12	1.68	2.24	2.80	3.36	3.92	4.48	5.04	5.60	6.16	6.72	7.28	7.84
8	1.28	1.92	2.56	3.20	3.84	4.48	5.12	5.76	6.40	7.04	7.68	8.32	8.96
9	1.44	2.16	2.88	3.60	4.32	5.04	5.76	6.48	7.20	7.92	8.64	9.36	10.08
10	1.60	2.40	3.20	4.00	4.80	5.60	6.40	7.20	8.00	8.80	9.60	10.40	11.20
11	1.76	2.64	3.52	4.40	5.28	6.16	7.04	7.92	8.80	9.68	10.56	11.44	12.32
12	1.92	2.88	3.84	4.80	5.76	6.72	7.68	8.64	9.60	10.56	11.52	12.48	13.44
13	2.08	3.12	4.16	5.20	6.24	7.28	8.32	9.36	10.40	11.44	12.48	13.52	14.56
14	2.24	3.36	4.48	5.60	6.72	7.84	8.96	10.08	11.20	12.32	13.44	14.56	15.68
15	2.40	3.60	4.80	6.00	7.20	8.40	9.60	10.80	12.00	13.20	14.40	15.60	16.80
16	2.56	3.84	5.12	6.40	7.68	8.96	10.24	11.52	12.80	14.08	15.36	16.64	17.92
17	2.72	4.08	5.44	6.80	8.16	9.52	10.88	12.24	13.60	14.96	16.32	17.68	19.04
18	2.88	4.32	5.76	7.20	8.64	10.08	11.52	12.96	14.40	15.84	17.28	18.72	20.16

Acres per Hour (at 80% field efficiency)													
Speed in mph	Width in Metres												
	6.0	10.0	14.0	18.0	22.0	26.0	30.0	34.0	38.0	42.0	46.0	50.0	54.0
3	1.75	2.91	4.07	5.24	6.40	7.56	8.73	9.89	11.05	12.22	13.38	14.55	15.71
4	2.33	3.88	5.43	6.98	8.53	10.08	11.64	13.19	14.74	16.29	17.84	19.39	20.95
5	2.91	4.85	6.79	8.73	10.67	12.61	14.55	16.48	18.42	20.36	22.30	24.24	26.18
6	3.49	5.82	8.15	10.47	12.80	15.13	17.45	19.78	22.11	24.44	26.76	29.09	31.42
7	4.07	6.79	9.50	12.22	14.93	17.65	20.36	23.08	25.79	28.51	31.22	33.94	36.65
8	4.65	7.76	10.86	13.96	17.07	20.17	23.27	26.38	29.48	32.58	35.68	38.79	41.89
9	5.24	8.73	12.22	15.71	19.20	22.69	26.18	29.67	33.16	36.65	40.15	43.64	47.13
10	5.82	9.70	13.58	17.45	21.33	25.21	29.09	32.97	36.85	40.73	44.61	48.48	52.36
11	6.40	10.67	14.93	19.20	23.47	27.73	32.00	36.27	40.53	44.80	49.07	53.33	57.60
12	6.98	11.64	16.29	20.95	25.60	30.25	34.91	39.56	44.22	48.87	53.53	58.18	62.84

For more information contact:

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